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ANNUAL REPORT OF THE DIRECTOR
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BOARD OF TRUSTEES

FOR THE YEAR 1939



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REPORT SERIES
FIELD MUSEUM OF NATURAL HISTORY
VOLUME 12, NUMBER 1
JANUARY, 1940

PUBLICATION 468



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MR. JAMES H. HARRIS

Mr. Harris is a member of the faculty of the College and is in charge of the English Department. He is also a member of the Board of Trustees.

ANNUAL REPORT OF THE DIRECTOR
TO THE
BOARD OF TRUSTEES

FOR THE YEAR 1939



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REPORT SERIES
FIELD MUSEUM OF NATURAL HISTORY
VOLUME 12, NUMBER 1
JANUARY, 1940

PUBLICATION 468

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† RESIGNED, 1939

JAMES SIMPSON

January 26, 1874 - November 25, 1939

Elected a Trustee November 19, 1920

On November 25, 1939, in the death of James Simpson, Field Museum lost one of its Trustees, whose services extended from November 19, 1920, to the date of his death, and one who had, both in service and in contributions, been in the front rank.

James Simpson served the Museum for many years, not only as a member of the Finance and Auditing Committees, but also as a Vice-President. He was a Patron and an Honorary Member. The Simpson Theatre, in the Museum building, was constructed as a result of his munificent contribution, and will, as long as the building stands, be a memorial to his generosity and good work, as will also the exhibit of Marco Polo sheep, which group was obtained by an expedition financed by him.

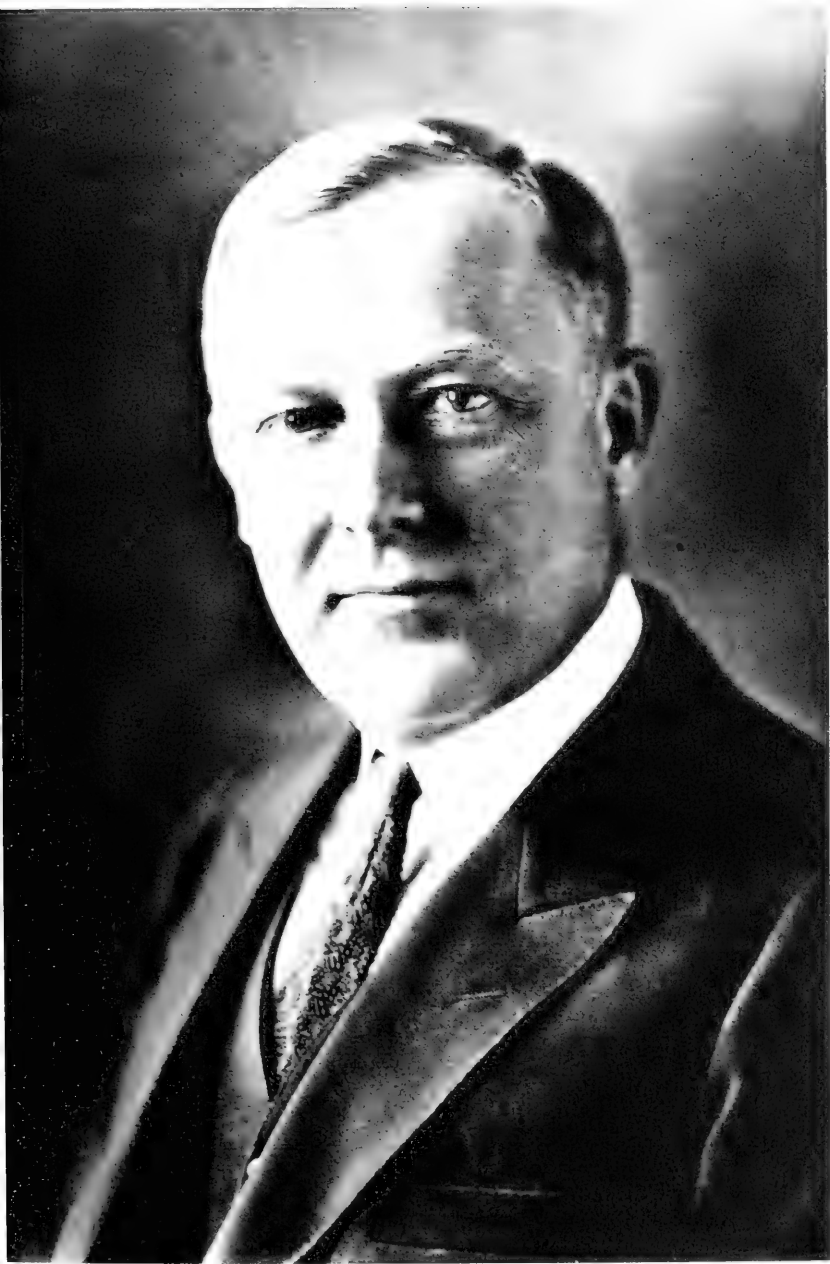
The preceding lines are merely the bald facts concerning James Simpson's service to Field Museum, for in all the years of his trusteeship he regarded his work as a bounden duty or service, and a service that was rendered quietly and without any ostentation, but in the most effective manner.

His advice and counsel were always sought by the members of any committee of which he was a member, and were always given after the matter had been weighed and studied by him. One of his outstanding contributions of service is shown in the Pension Plan adopted only last year by the Museum, and the sound condition of the Museum's funds and investments are in a large measure due to his untiring thought and advice as to those investments.

James Simpson's place cannot be filled, and this Board, with whom he has served these many years, will always miss him. As a tribute to his memory the Board directs that this memorial be entered on the records of this meeting and that the expression of their deep sympathy and their gratitude for their memories be expressed to his family.

CLIFFORD C. GREGG, Secretary
December 18, 1939

STANLEY FIELD, President
JOHN P. WILSON
A. A. SPRAGUE



JAMES SIMPSON

January 26, 1874-November 25, 1939

UNIVERSITY OF ILLINOIS
URBANA

ANNUAL REPORT OF THE DIRECTOR

1939

To the Trustees of Field Museum of Natural History:

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1939.

The year 1939 stands out as a year of great accomplishment at Field Museum. Particular emphasis was given to matters within the organization. Outstanding was the establishment of a pension plan which will provide in future for the automatic retirement of employees as they come to the established pension ages, 65 years for men and 60 for women. Each employee will contribute approximately 4 per cent of his annual salary to the pension fund, which sum will be more than matched by the Museum's contribution. Annual income received by each retiring employee will be approximately $1\frac{1}{2}$ per cent of the total salary earned while a member of the pension plan. Supplementing this benefit for future service, additional annual income after retirement has been provided in the amount of one per cent of all past salaries received from Museum service prior to the inception of the pension plan. The plan includes only those employees who have not already passed normal retirement ages. Special provision is being made for those beyond the age of eligibility so that they may be retired upon their own applications. While the pension plan had been under consideration for many years, the expense was heretofore an insurmountable barrier, especially the cost of the pensions for accrued past service. Through the gift of Mr. Marshall Field, a Trustee of the Museum who has long been interested in the institution and the welfare of its employees, the plan has been set in operation with accrued liabilities paid in full. It is perhaps needless to say that the announcement of the plan was received with unanimous approval by the employees of the institution.

Appreciation of the Museum by the public is evidenced by the year's attendance, which totaled 1,410,454 persons, an increase of almost 19,000 over the previous year. Paid admissions, however, declined more than 8 per cent. During 1939 only 5.9 per cent of the visitors at Field Museum paid admission, compared with 6.6 per cent in 1938, and 7.3 per cent in 1937. Steadily decreasing rates of return from investments, and some degree of fear for the future on the part of citizens, resulting in fewer contributions, combine to

make the financial administration of this Museum and other institutions similarly supported an increasingly difficult problem. A recent decision of the Illinois Supreme Court invalidated the so-called "Museums Act" which brought to this institution approximately \$100,000 per year from taxes as a contribution toward its maintenance. A continuation of the splendid educational work, the research, and the service of this institution to the public will depend to an ever-increasing degree on the realization by the public that the institution is operated in their behalf and is worthy of their support.

As was noted in the Report for the preceding year, the Museum's influence is not restricted to the visitors coming to the building, but is extended far beyond them by extra-mural activities. Contact was made with 186,677 children in their schools through lectures presented in classrooms and assemblies by members of the staff of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. This Foundation experienced one of its years of greatest progress, and deep appreciation is due to Mrs. James Nelson Raymond for her continued generous support of its activities. The lectures outside the Museum are only part of the Foundation's work. It continued also its spring, summer, and autumn series of free educational motion pictures for children in the James Simpson Theatre of the Museum, conducted many thousands of children on tours of Museum exhibits, and engaged in a wide variety of other educational activities, details of which will be found elsewhere in this Report.

Equally important was the continuation of the extra-mural work of the N. W. Harris Public School Extension. This Department throughout the school year circulates traveling exhibition cases on a bi-weekly schedule among all of Chicago's public schools, and many parochial, private and special schools as well, thus repeatedly reaching approximately 500,000 children. During 1939 the Harris Extension inaugurated a number of improvements and innovations in its service.

Combining the total number of visitors to the Museum with the total of the children reached outside the institution by the Raymond Foundation and the Harris Extension, it is found that the Museum's cultural influence was again extended directly to more than 2,000,000 persons. In addition, there was the usual further extension to incalculable numbers reached through less direct media such as radio programs, publications and leaflets, and articles in newspapers and magazines throughout this and many other countries.

Attendance at special programs presented in the Museum totaled more than 100,000 persons. This figure includes those who attended the spring, summer and autumn series of motion pictures for children provided by the Raymond Foundation in the Simpson Theatre; the audiences at the spring and autumn courses of Saturday afternoon lectures for adults in the Theatre; various special groups which used the Theatre and Lecture Hall; those participating in the daily guide-lecture tours of exhibits for both children and adults; and groups attending the Sunday lecture tours conducted by Mr. Paul G. Dallwig, the Layman Lecturer.

The Museum attracted many special groups of visitors during the year. It was one of three Chicago scientific institutions which acted as hosts to delegates attending the annual meeting of the American Society of Ichthyologists and Herpetologists, September 13-16. Special exhibits for these visitors were arranged at Field Museum and at the other host institutions (the John G. Shedd Aquarium, and the Chicago Academy of Sciences), and open house was held at Locy Hall of Northwestern University. Members of the Marquette Geologists' Association visited Field Museum in a body in February, and were conducted through the exhibits by Mr. Henry W. Nichols, Chief Curator of the Department of Geology, and Assistant Curator Bryant Mather. Several hundred safety patrol boys, selected for merit from schools in many communities of Illinois and Indiana, were brought to the Museum on May 11 under the auspices of the Chicago Motor Club, and conducted on tours of the exhibits by lecturers of the James Nelson and Anna Louise Raymond Foundation. In May the Raymond Foundation attained a new all-time record by extending its guide-lecture service in the Museum to 336 groups, comprising 36,082 individuals. Among these were groups from Michigan, Indiana, Wisconsin, Ohio, Kansas, and Illinois. So many requests were made for this service that eighty-nine groups could not be accommodated because all available time of the personnel was filled before their applications were made.

As for many years past, the Raymond Foundation in December assisted groups of delegates sent to the Museum by the National Congress of Four-H Clubs. These groups consisted of 1,018 boys and girls selected from farms throughout the United States and Canada, brought to Chicago for the International Live Stock Exposition. At the Exposition itself, Field Museum, following another custom of many years, installed an exhibit of several of the portable cases circulated among Chicago schools by the N. W.

Harris Public School Extension, together with photographs of outstanding exhibits in the Museum halls. In September, during the national convention of the American Legion, arrangements were made whereby Legionnaires and their families were admitted free to the Museum upon presentation of special coupons included in ticket books for various Chicago attractions distributed by the Legion.

On January 11, Mr. Stanley Field completed three decades as President of the Museum, an office which he has held continuously since 1909. At the Annual Meeting of the Board of Trustees, held January 16, Mr. Field was again accorded the complete confidence of his colleagues by re-election for his thirty-first term as President. All other Officers of the Museum who served in 1938 were re-elected for 1939. The others are: Colonel Albert A. Sprague, First Vice-President; Mr. James Simpson, Second Vice-President; Mr. Albert W. Harris, Third Vice-President; Mr. Clifford C. Gregg, Director and Secretary; and Mr. Solomon A. Smith, Treasurer and Assistant Secretary.

Mr. Fred W. Sargent was compelled by ill health to tender his resignation as a Trustee. This was regretfully accepted at a meeting of the Board held June 19. Mr. Sargent had been a Trustee since 1929, and had rendered valuable services as a member of the Board.

At a meeting of the Trustees held July 21, four prominent leaders in Chicago's civic activities were elected to membership on the Board, and as Corporate Members of the Museum. The new Trustees are: Mr. Lester Armour, Mr. William McCormick Blair, Mr. Walter J. Cummings, and Mr. Albert H. Wetten. They fill vacancies caused by deaths and resignations which have occurred during a period of more than two years past. Their election brought the Board to its full membership of twenty-one, as provided in the By-Laws, for the first time in many months. Unfortunately, this situation did not last long—the Museum was deprived of one of its most earnest and active Trustees and Officers by the death, on November 25, of Mr. James Simpson, who was Second Vice-President. A resolution adopted by the Trustees in tribute to Mr. Simpson will be found on page 14 of this book, preceding the Report proper.

In recognition of his eminent services to Field Museum, Professor Henri Humbert, Director of the Division of Phanerogams at the Muséum National d'Histoire Naturelle, in Paris, was elected a Corresponding Member. Professor Humbert was especially helpful in carrying out Field Museum's project for the photographing of type specimens of plants in Europe. He provided the Museum

representative, Mr. J. Francis Macbride, Associate Curator of the Herbarium, with working quarters, and extended many privileges and much valuable assistance which contributed greatly to the successful accomplishment of Mr. Macbride's mission.

Two names were added during 1939 to the list of Contributors. They are Mr. Clarence B. Mitchell, of Chicago, and Mr. Michael Lerner, of New York. Mr. Mitchell has devoted much time to a notable project in color photography at the Museum, which resulted in his appointment to the staff as a volunteer worker with the title, Research Associate in Photography. In the course of this work, Mr. Mitchell has paid considerable sums for equipment and supplies, and for the making of plates for the printing of color pictures. Mr. Lerner has presented to the Museum specimens of large and rare fishes, caught through the expert angling of himself and Mrs. Lerner on various expeditions they have conducted. The specimens fill important places in exhibits under preparation for a new hall of fishes.

No new Life Members were elected during 1939, but two Non-Resident Life Members were added to the rolls. They are: Miss Mary Louise Clas, of Washington, D.C., and Mr. Emil A. Siebel, of Lake Villa, Illinois.

Lists of all classes of Museum Members will be found in this Report, beginning on page 145. On December 31, 1939, the total number of memberships was 4,171, which represents a small but encouraging increase over the number at the same date in 1938, which was 4,122. The Museum is deeply appreciative of all support given it by citizens who hold memberships. They are a vital factor in the continuance of the Museum's program for the advancement of science and education, and are making a real contribution to the promotion of culture in Chicago.

With regret is noted the death, on April 10, of Dr. Adolf Carl Noé, who since 1933 had been Research Associate in Paleobotany on the staff of the Museum. Dr. Noé, who was Professor of Paleobotany at the University of Chicago, became intensely interested in the work of the Museum during the construction by the Department of Botany of the Carboniferous forest group in Ernest R. Graham Hall. Dr. Noé's researches and publications in the field of coal formations and coal balls are well known to scientists. He placed his collections and his scientific knowledge freely at the disposal of the Museum.

Work proceeded throughout the year on installations of new exhibits, and reinstallations and improvements of exhibits installed in other years. In each of the departmental reports contained in

this book there will be found a section giving details of these activities. A few of the more important installations deserve special brief mention here.

An entire new exhibition hall, Hall M, was opened in the Department of Zoology. It is devoted to the exhibition of approximately 2,000 specimens of lower invertebrates, which previously were but sparsely represented in the Museum. In the preparation of this hall, a new and improved type of lighting was adopted, using the recently developed tubular fluorescent lamps, which have notable advantages for certain types of exhibits. The new lamps provide a better diffusion of light, and show the exhibits in their true colors. A new group in the Hall of Birds (Hall 20) shows the red grouse of the British Isles in a characteristic scene representing the Scottish Highlands (Plate 10). This group is of special interest because the bird is a prime favorite with sportsmen.

A notable addition to the Hall of Plant Life (Hall 29) was a diorama showing the typical spring flora of the Chicago region.

Special exhibits displayed in Stanley Field Hall during the year included one during the Easter season of an assortment of especially interesting birds' eggs, and one of selected specimens from the Bishop Collection of Birds, shown for several weeks after the acquisition of that collection. The exhibit of birds' eggs attracted so much attention that it was later transferred to Hall 21 (Systematic Collection of Birds) as the nucleus of a permanent exhibit which may be enlarged in the future.

The new type of fluorescent lighting used in Hall M was installed also in Hall 21 (Systematic Collection of Birds), and Hall 30 (Hall of Chinese Jade), with excellent results in bringing out the true colors and other features of the exhibited specimens. It is planned to substitute this type of lighting, as conditions permit, in all installations where case-lighting rather than hall-lighting is used.

To all those friends of the Museum who made gifts of money and of material for the scientific collections and the Library, grateful acknowledgment is herewith extended. Among those who contributed funds during the year are the following:

Mr. Marshall Field, member of the Board of Trustees, made gifts of cash and securities to the munificent total of \$508,771.19. A large part of his generous contributions was for the purpose of establishing the new Pension Plan for Employees of the Museum, to which reference has already been made. The other funds received from Mr. Field were given to meet the huge deficit incurred by

maintaining the traditional high standards of Museum operation and progress in the face of declining income.

From the estate of the late Martin A. Ryerson the Museum received \$120,125.44. From the estate of the late Mrs. Carrie Ryerson, \$27,500 in cash and securities was received, as an addition to the sums previously received from this bequest as reported in 1938.

An anonymous donor turned over to the Museum the sum of \$30,000 in cash.

Mr. Stanley Field, President of the Museum, made gifts to the Museum totaling \$17,239.60, of which part was for the financing of expeditions, and part for purchases of much-needed equipment.

A contribution of \$5,000, in addition to the gift reported in the 1938 Annual Report, was received from Mr. Wallace W. Lufkin.

From the estate of the late Cyrus H. McCormick the Museum received \$10,000, resulting from a bequest.

Gifts totaling \$6,000 were received from Mrs. James Nelson Raymond for the support of activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, which she founded in 1925.

Mr. Leon Mandel was the donor of sums totaling \$1,200. Mr. Clarence B. Mitchell contributed \$1,000. Mrs. Clarence C. Prentice gave \$1,000 for the maintenance of the Leslie Wheeler Fund, designated for the purchase of additions to the collection of birds of prey. Mr. Boardman Conover contributed \$400 toward the expeditionary program.

Under their agreement with the Museum, the Jewish Welfare Fund, of Chicago, gave \$1,000, and the Emergency Committee for the Aid of Displaced German Scholars gave \$750, toward the salary of a scientist employed on the Museum staff through special arrangements. The balance of this salary is paid from Museum funds.

Other sums of varying amounts were received as gifts from Mr. Carl Colby, Mrs. Hermon Dunlop Smith, Mr. C. R. Harrington, and Mr. Daniel M. Schuyler.

The many gifts of material for the collections of the Museum are reported upon in detail in the departmental sections of this book, and in the complete List of Accessions which begins on page 120. A few outstanding ones have been selected for mention here, as follows:

The famous Bishop Collection of more than 50,000 North American birds, one of the largest and most important collections ever assembled, was acquired by purchase with funds made available by

a donor who desires to remain anonymous. This great collection was the last of its kind which had not passed to a public institution. It includes representatives of nearly all known forms of birds found in every section of North America north of Mexico. The collection represents forty years of constant and intensive effort on the part of its former owner, Dr. Louis B. Bishop, of Pasadena, California, and numerous professional ornithologists who have been associated with him at various times. Among especially important items in the collection are eleven type specimens, and a number of representatives of species now extinct, as well as other species which have become very rare and difficult to obtain. Prior to the acquisition of this collection, Field Museum's efforts in ornithological research were devoted principally to the birds of Central and South America, Africa, and other foreign localities. The North American field had been left largely to other institutions, although Field Museum did have a collection which was extensive enough to be regarded as important. Addition of the Bishop Collection fills a large gap in the collections of birds, and gives this institution one of the most comprehensive North American bird collections either in this country or abroad. This is of tremendous importance to scientists and students of ornithology, because of the unusual research opportunities it affords. A detailed knowledge of North American birds is fundamental to all ornithological research in evolution, variation, and all theoretical fields of biology.

A notable gift was that of eleven pieces of ancient bronze movable type, cast in Korea but made to print Chinese characters (Plate 4), from Mr. Thomas E. Donnelley, of Chicago. Mr. Donnelley presented also thirty-three pieces of old wooden type.

Mr. Michael Lerner, of New York, who in the past has made noteworthy contributions to the fish collections, continued his generous co-operation with the Museum in 1939 by providing the means for the making of special color films and slides needed for the preparation of a habitat group.

From the Department of Botany of the University of Chicago, Field Museum received a gift of more than 2,200 herbarium specimens. These represent a notable reference collection assembled by the late Professor A. C. Noé, who, in addition to his position on the university faculty, was Research Associate in Paleobotany on the Museum staff. The collection includes important plants from many parts of the world, and forms a most valuable addition to the Herbarium of Field Museum.

Again, as in many past years, the Chicago Zoological Society, John G. Shedd Aquarium, Lincoln Park Zoo, and General Biological Supply House contributed frequently and generously to the collections of the Department of Zoology. Many specimens were obtained also through the use of money made available by the Leslie Wheeler Fund and the Emily Crane Chadbourne Fund.

Other notable contributions to the collections of the Museum were received from Dr. Henry Field, Mr. Stanley Field, Dr. Wilfred H. Osgood, Dr. Earl E. Sherff, Mr. Hermann C. Benke, Dr. S. M. Lambert, Mr. Paul C. Standley, Mr. Loren P. Woods, Dr. Julian A. Steyermark, Dr. Paul S. Martin, and Mr. Clifford C. Gregg.

From the Chicago Park District the Museum received sums aggregating \$86,093.85, representing its share, authorized by the state legislature, of collections made during 1939 under the tax levies for 1938 and preceding years. As has already been mentioned, the legislative act under which such tax money has been paid to Field Museum and other museums was invalidated by the Illinois Supreme Court during the year. It is hoped that in 1940 the State Legislature will take steps to provide for restoration of the Museum tax on a basis acceptable to the taxpayers and the courts.

The many difficulties in the financial administration of an institution of this kind, combined with an outlook that is not encouraging, have prompted those in charge to review carefully everything in this field in order to be in as sound a position as possible should circumstances change for the worse. The Finance Committee of the Board of Trustees has carefully checked the investment portfolio, and after painstaking study has ordered many changes for the purpose of insuring a reasonable income while protecting principal. The sum of \$26,600, advanced by the investment account in 1938 to liquidate a bank loan, was returned to the investment account in 1939 from operating funds. This restitution was made possible through the generosity of Mr. Marshall Field. As a result there are no obligations against the operating account except current bills. Also through the gift of Mr. Marshall Field it was possible to create a reserve for extraordinary building repairs and mechanical plant renewals and replacements. The lack of such a fund has been a matter of serious concern for a number of years, and might have been most embarrassing except for the unusual efficiency of the Chief Engineer and General Superintendent in maintaining their equipment.

With the full approval of the heirs of the late Mr. Chauncey Keep, the Board of Trustees authorized the use of income from the

Chauncey Keep Yale University Chronicles of America Fund for the purchase of specimens, with the understanding that the principal and accretions of this fund, amounting to \$17,000, shall remain intact. Credit will be given the fund for all purchases made under this authorization.

In keeping with the spirit of the new Pension Plan for Museum Employees, the group life insurance policy held by the institution was amended in several respects. In order that protection might be afforded all employees, a maximum benefit of \$3,000 was established, and within that limit benefits were arranged equal to or slightly exceeding one year's salary of the insured. A clause was inserted reducing to \$1,000 the insurance benefit of any employee at the time he retires on pension. This clause was inserted because the purpose of the insurance is to provide protection for dependents, who will normally be old enough to care for themselves when an employee becomes a pensioner.

Revisions were made in the group contract with the Plan for Hospital Care, Inc., making available greater benefits than hitherto for Field Museum employees and their families. The plan provides hospitalization, when needed, for subscribing employees and their families, and the limits of such hospitalization were increased by the revisions in terms. Subscription is at a nominal cost, and entirely voluntary. The plan is endorsed and sponsored by most of the principal hospitals and medical authorities, and has the support of many civic leaders. A large proportion of the Museum personnel have taken advantage of the opportunity to subscribe, and a number have already had occasion to use the services provided.

The Museum had ten expeditions in operation in the United States and foreign countries during 1939, and considerable field work on a smaller scale was also conducted. As in the preceding year, this extension of activity became possible only through the generosity of patrons who sponsored the most important expeditions. Without such assistance, the Museum would have been unable to allocate adequate funds for this purpose.

Of the expeditions at work in 1939, two are of especial importance: the Magellanic Expedition of Field Museum, and the ninth Field Museum Archaeological Expedition to the Southwest. Both of these were sponsored by Mr. Stanley Field. The Magellanic Expedition, which is under the leadership of Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, will continue its work for several months in 1940. It is collecting specimens over a broad

field, including parts of southern Peru, Bolivia, Chile, the shores of the Straits of Magellan, and the island of Tierra del Fuego at the foot of South America (noted as one of the world's windiest spots). This expedition began work in July. The first members entering the field were Mr. Colin C. Sanborn, Curator of Mammals, Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, and Mr. John Schmidt, field assistant. Dr. Osgood joined the party in October. Mr. Karl Schmidt completed his part of the work about the middle of November, thereafter returning to the Museum, but the other members of the expedition remained in the field. In addition to making comprehensive collections of the fauna of the regions indicated, this expedition has as a prime objective the assembling of data to supplement the work of Charles Darwin, who pioneered in scientific research in the more remote parts of the area.

The Field Museum Archaeological Expedition to the Southwest was led by Dr. Paul S. Martin, Chief Curator of the Department of Anthropology. He was assisted by several other archaeologists, and a party of excavators. In eight previous years Dr. Martin had worked on sites of early North American cultures in southwestern Colorado, and in 1939 his expedition operated in a new area, in the vicinity of Glenwood, New Mexico. There the ruins of early Mogollon culture were investigated. A large collection of artifacts was obtained for the Museum's exhibits and study collections, and Dr. Martin found traces of the cultural developments that took place during a 1,500-year period which had previously been a blind gap to archaeologists.

The Sewell Avery Botanical Expedition to Guatemala, sponsored by Mr. Sewell Avery of the Board of Trustees, in 1939 completed its work, which was begun in the preceding year. The expedition was conducted by Mr. Paul C. Standley, Curator of the Herbarium. A comprehensive collection of the flora of many parts of the country was obtained, and data were assembled for proposed scientific publications. Operations were conducted in selected localities in each principal type of region found in Guatemala: volcanoes, alpine meadows, high mountain slopes, rain forests, deserts, etc.

Late in the year another botanical expedition was sent to Guatemala. It is sponsored by President Field, and is being conducted by Dr. Julian A. Steyermark, Assistant Curator of the Herbarium. Its object is to collect specimens and data to supplement the findings of the Sewell Avery Expedition, and it will continue operations into 1940.

The Field Museum Paleontological Expedition to Western Colorado collected fossil remains of the early mammals of Paleocene and Eocene formations in Mesa, Garfield, and Gunnison counties. Its findings included an important genus hitherto unknown to paleontologists. Mr. Bryan Patterson, Assistant Curator of Paleontology, was the leader. He was accompanied by Mr. James H. Quinn, Assistant in Paleontology, and several other collectors from Chicago and from the local Colorado region.

An expedition to Florida collected specimens of marine animals, and made studies of the invertebrate life of the region. Dr. Fritz Haas, Curator of Lower Invertebrates, and Staff Taxidermist Leon L. Walters were the collectors. Operations were conducted on the Atlantic and Gulf coasts. President Field sponsored the expedition.

A paleontological expedition to South Dakota and Nebraska, sponsored by President Field, and led by Mr. Paul O. McGrew, Assistant in Paleontology, collected skeletal material representing various species of extinct mammals in Oligocene, Miocene, and Pliocene fossil beds. Mr. McGrew was accompanied by Mr. John M. Schmidt, Mr. Orville Gilpin, and local collectors from the areas visited.

Dr. Francis Drouet, Curator of Cryptogamic Botany, and Mr. Donald Richards, of the Hull Botanical Laboratory of the University of Chicago, conducted a botanical expedition to Mexico and the southwestern United States. President Field was the sponsor. The field of operations included parts of New Mexico, Arizona, Sonora, and Lower California. The object of this expedition was the collecting of the flora of the regions indicated, with special attention being given to an investigation of the algal and bryophyte flora.

The Sewell Avery Zoological Expedition to British Guiana, which had begun operations in July, 1938, completed its work and returned to Chicago early in 1939. Mr. Sewell Avery was sponsor, and Mr. Emmet R. Blake, Assistant Curator of Birds, was the leader. Mr. Blake was assisted by a party of local collectors and native boatmen. The field of operations was the region along the Courantyne River near the boundary of Dutch Guiana, the New River, and tributaries far in the interior. Despite an unfortunate accident to a boat carrying a large part of the expedition's collections, a good representation of the fauna of the little known region arrived safely at the Museum.

Birds, small mammals, and reptiles of the Yucatan Peninsula were collected for Field Museum by an expedition sponsored and conducted by Mr. Melvin Traylor, Jr., and Mr. Wyllys Andrews.

Field work on a more limited scale was carried on from time to time by various members of the Museum staff, including: botanical collecting in Venezuela by Mr. Llewelyn Williams, Curator of Economic Botany, who is in that country on an extended leave of absence from Field Museum to assist in making a botanical survey for the Venezuelan Government; zoological collecting in England and Scotland by Mr. Colin C. Sanborn, Curator of Mammals, who was in Europe for several months as a Fellow of the Guggenheim Foundation; ornithological work in the Chicago area, conducted by Mr. Emmet R. Blake, Assistant Curator of Birds, and Mr. Frank H. Lett, Preparator of Accessories; mineralogical collecting in Pennsylvania, New Jersey, and New York state, conducted by Mr. Bryant Mather, Assistant Curator of Mineralogy; zoological collecting in Florida conducted by Dr. Wilfred H. Osgood, Chief Curator of Zoology, and Mr. Alfred C. Weed, Curator of Fishes; and botanical and zoological collecting in various regions of Missouri, conducted by Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, and Mr. Loren P. Woods of the staff of the Raymond Foundation.

The project for the making of photographs of type specimens of plants in the leading herbaria of Europe, which has been under way since 1929, was continued through most of 1939 by Mr. J. Francis Macbride, Associate Curator of the Herbarium. Negatives of more than 40,000 type specimens of plants, chiefly of South American species, are now on file in the Museum, and prints from them are made available, at cost, to botanists and institutions all over the world. This is a service widely recognized for its inestimable value to systematic botany. Its importance is especially emphasized at this time, as many of the European collections face possible destruction in the war which began late in 1939. The negatives at Field Museum thus might become the only remaining records of many plants of scientific and historic importance. Mr. Macbride returned to the Museum December 18.

Mr. Leon Mandel generously made arrangements whereby Mr. Rudyerd Boulton, Curator of Birds, and Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology, left Chicago on December 26 to join an expedition scheduled to sail January 1, 1940, from Havana. This expedition, to be conducted aboard Mr. Mandel's yacht *Buccaneer*, will explore out-of-the-way cays, islands, and rocks in the Caribbean Sea. Birds, mammals, and reptiles will be collected in these places, and fishes and other marine creatures will be sought

in the waters surrounding them. Mr. Mandel himself will participate in the collecting, as he has done on other expeditions he has sponsored for Field Museum. Another collector will be Captain William Gray, of Palm Beach, Florida.

Twenty-eight technical scientific publications, circulated internationally among museums, libraries, other institutions, and individual scientists, were issued by Field Museum Press. In addition, two popular leaflets for lay readers were published, and printing of guidebooks, handbooks, and miscellaneous matter was continued as usual on a large scale. Outstanding in importance was the publication of Parts I and II of *A Bibliography of Birds*, a comprehensive work of interest to ornithologists everywhere. It was compiled by Dr. Reuben Myron Strong, Chairman, Department of Anatomy, Loyola University Medical School, Chicago.

The twelve issues of *Field Museum News*, the monthly bulletin for Members of the Museum, appeared in a new and improved typographical "dress," easier to read. The number of pages in each issue was increased from four to eight, making possible a more extensive and thorough coverage of the activities of the Museum. The increased size of the *News*, of course, placed an additional burden on the Division of Printing. News about Museum activities was released to the daily press regularly, resulting in the usual quota of publicity not only in Chicago but throughout the nation, and frequently in foreign countries as well.

The Book Shop of Field Museum, which was established in 1938, continued throughout 1939 to operate with the success that marked its first months. The sales, both to visitors at the Museum, and by mail orders, indicate that the services it offers are welcome to the public. All books which it distributes, whether for adults or children, are first passed upon by qualified members of the Museum's scientific staff, thus assuring that books of doubtful authenticity or accuracy are not offered.

Toward the end of the year, Field Museum became a member of the University Broadcasting Council, which is responsible for many of the better types of educational and cultural programs presented on the radio. In this organization the Museum is associated with such other institutions as Northwestern University, De Paul University, and the Art Institute of Chicago. Plans were made for presentation, in 1940, of a series of educational broadcasts on subjects within the scope of the four scientific Departments of the Museum. These will be presented over one of the networks of the National

Broadcasting Company. The broadcasting company is generously co-operating in the venture, making radio time available, and supplying the personnel and facilities for script writing and dramatic presentation.

During the year lecturers from the Raymond Foundation co-operated with the Zenith Radio Corporation in staging some experimental broadcasts for radio and television. In the course of a series of six broadcasts, stereopticon slides were projected, Museum specimens were demonstrated and explained, and live reptiles were exhibited to the television audiences. It is felt that these experiments will be of great value in determining the possibilities of television as a medium of instruction, as well as in developing the technique of this medium of disseminating information.

The James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures co-operated, as in 1938, with the Public School Broadcasting Council by arranging special programs at the Museum as "follow-ups" to the Council's science radio programs. Informal meetings were held in the lecture hall for representative pupils selected from the upper grades of many schools. At these gatherings, slides were shown, specimens were made available for study, and Museum methods were demonstrated. The groups were also conducted on tours of exhibits, and mimeographed sheets containing text and drawings pertaining to the subjects discussed were distributed to them.

In June the Museum participated in a conference on industrial recreation sponsored by University College of Northwestern University, with the co-operation of the Adult Education Council and numerous other organizations interested in the better use of leisure time. A special exhibit outlining the activities of the Museum was displayed, and Mr. Loren P. Woods, of the Raymond Foundation staff, was in attendance to give further information to the delegates.

Field Museum was represented in exhibits at the New York World's Fair and at the Golden Gate International Exposition at San Francisco. To the New York Fair the Museum sent an Egyptian mummy which was used in an exhibit of the General Electric X-ray Corporation to demonstrate the application of the fluoroscope in scientific research. An elaborate installation was arranged whereby visitors were enabled alternately to view the mummy's exterior and then, through the fluoroscope, its interior. Field Museum was invited to participate because of the pioneer work conducted at this institution over a period of several years, beginning in 1925, in

developing and applying successfully a technique for X-ray photography on mummies and other types of specimens not previously studied in this manner. The exhibit in New York, at which credit was given the Museum for its part, attracted approximately 4,000,000 persons, according to the tally kept by the General Electric Company, and it resulted in nation-wide publicity. At the San Francisco exposition the Museum was represented by a collection of ethnological objects from Borneo, Java, New Guinea, Sumatra, the Cook Islands, Celebes, and other South Pacific islands. These were exhibited in the exposition's Department of Fine Arts.

Field Museum was host to a long list of distinguished visitors during 1939. On two occasions members of European royal houses were received. On April 25, Their Royal Highnesses, Crown Prince Frederik and Princess Ingrid, of Denmark, were guests of the institution. They were accompanied by Mr. Reimund Baumann, the Danish Consul. On May 4, His Royal Highness, Crown Prince Olav, of Norway, was a visitor to the Museum. With the Prince came Mr. Sigurd Maseng, Consul of Norway. Among the other distinguished visitors of the year were the following: Mr. Russell Plimpton, Director of the Institute of Art, Minneapolis; Mr. Paul Frank, of the National Park Service staff at Zion National Park, Utah; Mr. Michael Lerner, of New York City; Dr. Paul Ganz, a professor at the University of Basel in Switzerland, and President of the International Commission on the History of Art; Colonel Richard Meinertzhagen, noted British ornithologist; Professor E. N. Transeau, head of the Department of Botany, Ohio State University; Dr. Osvald Siren, Curator of Oriental Art at the National Museum in Stockholm, Sweden; Dr. R. A. Falla, Director of the Canterbury Museum, Christchurch, New Zealand; Dr. Watson Davis, Managing Director of Science Service, Washington, D.C.; Mr. Lorenz Hagenbeck, one of the owners of the Hagenbeck Tierpark, of Stillengen, Germany; Dr. Norman C. Fassett, Curator of the Herbarium of the University of Wisconsin; Mr. T. A. Monmayeda, Director of the Japan Institute, New York; Mr. Taneo Taketa, Manager of the New York office of the South Manchurian Railway; Mr. L. D. Bestall, Director of the Hawkes Bay Art Gallery and Museum, Napier, New Zealand; Mrs. Nicholas (Alice Roosevelt) Longworth, widow of the late Speaker of the House of Representatives of the United States, and her daughter; the Duke and Duchess of Sutherland, of London; Dr. Dillman S. Bullock, of Angol, Chile; Dr. C. R. Ball, of Washington, D.C., an authority on willows; Mrs. M. Quennell, Hon. A.R.I.B.A.,

who is the Director of the Geffrye Historical Museum, in London, England; William J. Morden, Associate in the Department of Mammals at the American Museum of Natural History, New York; Lieutenant Colonel J. H. Patterson, of the British Army (retired), who shot the man-eating lions of Tsavo now exhibited in Field Museum, and is author of an interesting book about these famous marauders; Dr. Robert Allen Cooley, well-known entomologist specializing in ticks at the Rocky Mountain Laboratory, Hamilton, Montana; Mr. J. B. Kinlock, of the Department of Forestry of British Honduras; Mr. Charles R. Knight, of New York, the artist who painted the series of prehistoric life murals in Ernest R. Graham Hall of Field Museum; Mr. Newton B. Drury, Secretary of the Save-the-Redwoods League, of California; Dr. Hu Chao-chun, Director, City Museum of Greater Shanghai, China; Mr. Herbert N. Hale, Museum Director of the Public Library, Museum, and Art Gallery of South Australia, at Adelaide; Mr. Chauncey J. Hamlin, President of the Buffalo Museum of Science; Mr. Victor Fisher, Ethnologist of the Auckland (New Zealand) Museum; Dr. Herbert Friedmann, Curator of Birds at the United States National Museum, and President of the American Ornithologists' Union; Dr. D. Rubin de la Borbolla, Director, Escuela Nacional de Ciencias Biologicas, Mexico; Dr. T. H. Goodspeed, Professor of Botany at the University of California; Dr. Frank D. Kern, of Pennsylvania State College, who is one of the foremost specialists on fungi; Mrs. Gertrude Bass Warner, Director of the University of Oregon Museum of Fine Arts, Eugene, Oregon; Professor V. Gordon Childe, noted anthropologist of the University of Edinburgh, Scotland; Mr. William H. Phelps, ornithologist, of Caracas, Venezuela; Dr. G. T. Velasquez, Professor of Botany, University of the Philippines, Manila; Mr. Lloyd Weaver, of the Marine Biological Laboratory, Woods Hole, Massachusetts, and the Department of Botany, Columbia University, New York; Mrs. Oscar Straus, of New York, who sponsored the Straus West African Expedition of Field Museum in 1934; Miss Florence Guggenheim Straus, who accompanied Mrs. Straus; Mr. Stewart Springer, of the Bass Biological Laboratories, Englewood, Florida; Mr. Theodore Sizer, Associate Director, Gallery of Fine Arts, Yale University; Professor C. N. Gould, of Santa Fe, New Mexico, head of the Southwest Division of the United States National Park Service; Mrs. V. Goschen-de Watteville, of Berne, Switzerland, who with her father conducted an expedition to central Africa which resulted in extremely important zoological collections for the Natural History Museum of Berne; Miss Martha van Bomberghen of Brus-

sels, member of the Conseil de Direction of the Institut Belge des Hautes Etudes Chinoises, Secretary of the Société Belge d'Etudes Orientales, and Editor of *Mélanges Chinoises et Bouddiques*; Dr. E. J. Lindgren, well-known anthropologist of Cambridge University, and Honorary Editor of *Man*; Mr. A. R. Penfold, Curator and Economic Chemist of the Sydney Technological Museum in Australia; Mr. S. Koperberg, Secretary of the Java Institute for Promoting Javanese Art and Culture, Director of the Museum Sono Boedojo, and Secretary of the School for Javanese Arts and Crafts; Dr. Herman Johannes Lam, Director of the National Herbarium, Leiden, Netherlands; Dr. Levi W. Mengel, Director Emeritus of the Public Museum and Art Gallery of Reading, Pennsylvania; Dr. F. M. Pagán, head of the Department of Botany, University of Puerto Rico; Professor Maximino Martinez, noted botanist of Mexico City, formerly on the staff of the National Museum of Mexico; Dr. Edgar Anderson, of the Missouri Botanical Garden; Dr. Ralph Linton, formerly on the staff of this institution's Department of Anthropology, now chairman of the Department of Anthropology at Columbia University; Dr. T. H. Kearney, of the Department of Agriculture, Washington; Dr. Hermon C. Bumpus, noted zoologist, former Director of the American Museum of Natural History, New York, and now Chairman of the Educational Advisory Board, National Parks Service; Dr. D. C. Graham, well-known archaeologist and ethnologist, and a professor at the West China Union University, Cheng-tu, Szechwan; Professor Owen Lattimore of the Johns Hopkins University, Baltimore, who is editor of *Pacific Affairs*; Mr. James Roosevelt, of Hollywood, California; Mr. A. S. Coggeshall, Director of the Santa Barbara (California) Museum of Natural History; Dr. Edson S. Bastin, Chairman of the Department of Geology and Paleontology at the University of Chicago; Professor Moholy-Nagy, Director of the School of Design, Chicago; Mr. David Rockefeller, who is engaged in economic studies at the University of Chicago; and Count Benedict Tyszkiewicz, of Poland.

The School of the Art Institute of Chicago is constantly drawing upon the facilities of Field Museum. In the following classes of the professional art school, problems were given which required research work in Field Museum: History of Art I; History of Art II; Pattern Design; Composition and Research; Drawing I (introductory courses).

In 1939, five different sections in the Saturday Junior Department classes for children worked in groups under instructors'



PIT-HOUSE DURING EXCAVATION

Near Reserve, New Mexico

Field Museum Archaeological Expedition to New Mexico, 1939

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supervision in Field Museum as a part of the regular curriculum. Needless to say, this Museum is delighted to co-operate with its neighbor institution.

New, improved uniforms for the Museum guard force were adopted during the year. Comfort, coolness, and better appearance are emphasized in the new type. The high military collar, which was a feature of every uniform worn since the founding of the Museum, was discarded in favor of the open lapel collar. The color was changed from the severe military olive drab to blues of harmonizing shades for coat and trousers. Gold buttons and braid complete the ensemble. During the summer, the caps are topped in white.

During the course of the year Field Museum signed a contract under which it supplies the necessary steam for heating the new Administration Building of the Chicago Park District, located immediately south of the Museum. This contract is, in fact, an additional esthetic contribution to Chicago inasmuch as it makes unnecessary the erection of another heating plant on the lake front with an additional smokestack on Chicago's horizon. The heating of the John G. Shedd Aquarium, another neighboring institution, and the stadium in Soldier Field, has been taken care of in similar fashion since their erection some years ago. Temporary heating service to the Administration Building was begun on February 8, while it was still in the process of construction. The Museum furnished 7,481,505 pounds of steam to that building, as well as 13,003,488 pounds to the Aquarium, and 13,432,523 pounds to Soldier Field.

Several new appointments to the staff of the Museum were made during 1939:

Mr. Bryant Mather joined the staff as Assistant Curator of Mineralogy. He is a graduate of the Johns Hopkins University, where he studied under some of the outstanding authorities of the mineralogical world. Prior to coming to the Museum, he was engaged in mineralogical work for the United States Geological Survey and the National Park Service, and served for a time as Curator of Mineralogy in the Museum of the Natural History Society of Maryland, at Baltimore.

Mr. Henry Herpers, a graduate of the Massachusetts Institute of Technology, was appointed Assistant Curator of Geology. He has specialized in chemistry, and much of his time will be devoted to the chemical laboratory in the Museum's Department of Geology.

Mr. James R. Shouba was employed to assist the General Superintendent of the Museum.

Dr. Louis B. Bishop, of Pasadena, California, well-known in ornithological circles as the founder of the extensive Bishop Collection of Birds which, as has been previously stated, came into the possession of the Museum in 1939, accepted an honorary appointment to the staff of the Museum as Research Associate in the Division of Birds. Dr. Bishop will continue research upon these birds, to the collecting of which he has devoted a major portion of his time during the past forty years.

Mr. Edgar G. Laybourne, Assistant Taxidermist, resigned to accept a position in Hawaii.

On December 31, several Museum employees were retired under the new pension program instituted earlier in the year. Those retired are: Miss Margaret M. Cornell, Chief of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures; Miss Rose J. Watson, Departmental Librarian and Secretary to the Chief Curator of Anthropology; Mr. Thomas Mason, of the Division of Engineering, and Mr. Valerie Legault, preparator in the Department of Geology. Miss Cornell had joined the staff in 1926, and had become Chief of her Division in 1929. Under her supervision the Raymond Foundation expanded both in number of personnel and in the scope of its activities. Miss Watson had been employed at the Museum since 1907, serving under three Chief Curators of Anthropology—the late Dr. George A. Dorsey, the late Dr. Berthold Laufer, and the incumbent Chief Curator, Dr. Paul S. Martin. Mr. Mason joined the staff as Chief Engineer in 1896, and was one of the oldest men in continuous service of the institution. During the entire period when the Museum was located in Jackson Park, Mr. Mason continued as Chief Engineer, giving up that title and responsibility when the care of a new and larger plant and a new building confronted him at an age when many men retire from active service. Mr. Mason chose to remain in the Division of Engineering, however, and had passed his eightieth year when he retired. Mr. Legault came to the Museum in 1906. For some years he served in the N. W. Harris Public School Extension, and since 1924 had been charged with the mechanical side of the preparation of exhibits in the Department of Geology.

Mr. A. J. Thompson, Captain of the Fire Department in the old building, and more recently in charge of janitorial work at the

Museum, was placed on the pension roll, effective from January 1, 1939. He had been a Museum employee since 1894.

Mr. David Gustafson, who came to Field Museum in October, 1937, to assist in editorial work and proofreading on Parts I and II of *A Bibliography of Birds*, terminated his temporary employment at the Museum on December 31, by virtue of the completion and publication of the two volumes.

As for several years past, the Museum was indebted for assistance in its work of research and in various other activities by a loyal group of volunteer workers. The names of these men and women, whose services have been of inestimable value, will be found in the List of the Staff at the beginning of this book. They are designated by the titles "Research Associate" and "Associate," which distinguish them from salaried members. An exception is the title "The Layman Lecturer," held by Mr. Paul G. Dallwig, who also serves without compensation. Among these volunteers, Miss Claire K. Nemec, who was Associate in the Division of Lower Invertebrates, discontinued her work upon her marriage during the year.

Notable progress was made in the biological research project being conducted on the giant panda as a result of the receipt of the first complete carcass available for scientific dissection. The specimen in question, which came from the Chicago Zoological Society, and was known as "Su-lin" during its life at that society's zoological park at Brookfield, Illinois, is being thoroughly studied by Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology. An interesting development during the year was the discovery that this panda, which from all external indications during its life had been thought to be a female, was actually a male. It was thus learned that giant pandas should be included among those several kinds of animals known to zoologists in which the evidences of sex are so concealed that it is difficult to distinguish males from females by external examination only.

From an experiment conducted at Field Museum in 1938, there was a further interesting development in 1939. The pink lotus plant of the Orient (*Nelumbium Nelumbo*), which, as reported in the previous year, was germinated in the laboratories of the Department of Botany from one of some ancient seeds which had lain dormant for a period estimated between 300 and 500 years, continued to grow, and in the spring of 1939 it reached full blossom with the appearance of several large pink flowers characteristic of the species. This

occurred at the Conservatory of Garfield Park, to which the plant had been transferred for further cultivation.

Specimens, from the collection of Field Museum, of the Pultusk Russian Poland meteorite that fell in 1868, have played an important role in a program of research which is leading to more definite knowledge of the ages of the earth, the solar system, and the universe. Dr. Robley D. Evans, a well-known physicist on the staff of the Massachusetts Institute of Technology, at Cambridge, and his colleagues in the Department of Chemistry there—Dr. Walter C. Schumb and Miss Jane L. Hastings—used these specimens in investigations into the relative amounts of the isotopes of radioactive elements in both meteoritic and terrestrial materials. The Museum recently published the results of part of their research.

Mr. Colin C. Sanborn, Curator of Mammals, who was appointed a Fellow of the John Simon Guggenheim Foundation in the spring of 1938, returned from Europe in March, 1939, after seven months of study overseas under his fellowship. The greater part of this period was spent at the British Museum (Natural History), working on a taxonomic revision of the horseshoe bats. In connection with this study, Mr. Sanborn also visited museums in Edinburgh, Amsterdam, Leiden, and Paris. Two weeks were spent in Scotland collecting material for the red grouse habitat group which was completed during the year.

Mr. Llewelyn Williams, Curator of Economic Botany, on leave of absence to aid the government botanist, Dr. Henry Pittier, in botanical exploration of Venezuela, reported during the year on a journey of exploration he made from Caracas across the Venezuelan Guiana, by way of Ciudad Bolivar and La Paragua. Much of this trip was in canoes on the Caroni River in regions which had been very little explored botanically. Mr. Williams was accompanied by Captain Felix Cardona of the Venezuelan Frontier Commission.

Dr. Samuel J. Record, Research Associate in Wood Technology on the staff of Field Museum, and Professor of Forest Products at Yale University, was appointed Dean of the university's School of Forestry, a signal honor, and a tribute to his high professional eminence.

Staff Taxidermist John W. Moyer is author and publisher of a book, *Lessons in Museum Taxidermy*, which appeared during 1939. It is intended as an aid both to amateurs who wish to mount birds, mammals, fishes, etc., as a hobby, and to persons who wish to train themselves in taxidermy as a profession.

A textbook on fungi, for upper elementary grade school pupils, by Mrs. Leota Gregory Thomas of the Raymond Foundation staff, was published during the year by the American Education Company, of Columbus, Ohio, under the title *Seedless Plants*. The book is of a type known as a "unit study book" and has found a ready acceptance among many educators and school officials.

Members of the staff of Field Museum visited other scientific institutions for special studies, attended a number of important meetings held by various learned societies, and frequently were guest speakers before various organizations, or on radio programs. Mr. Sharat K. Roy, Curator of Geology, visited leading museums and universities in the east to check the results of his research on the paleontology of Baffin Land with the work of other paleontologists. On August 18 he gave a radio talk on meteorites over station WCFL. Mr. Rudyerd Boulton, Curator of Birds, attended the annual meeting of the American Ornithologists' Union, held at Berkeley, California, in June. He is treasurer of the organization, and business manager of its quarterly journal, *The Auk*. Later in the year, Mr. Boulton spent several weeks at the American Museum of Natural History, New York, in special research on the collections of birds from Angola (Portuguese West Africa). At the request of the Editors of *The 1939 Britannica Book of the Year*, an annual volume issued by the publishers of *The Encyclopedia Britannica*, Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, prepared the section devoted to reviewing the accomplishments of natural history museums all over the world. Dr. Paul S. Martin, Chief Curator of the Department of Anthropology, attended the meeting held at Ann Arbor, Michigan, in May, of the American Anthropological Society (Central Section). He was elected First Vice-President. Dr. Henry Field, Curator of Physical Anthropology, presented a paper on "Ancient and Modern Inhabitants of Iran" before the meeting of the Anthropology Section of the American Association for the Advancement of Science, at Milwaukee, Wisconsin, on June 21. He also spent several weeks at Harvard University in special research in connection with data required for a publication on the physical anthropology of Iraq. Dr. Field also made a number of appearances on the radio and the lecture platform. Dr. Fritz Haas, Curator of Lower Invertebrates, presented a series of ten lectures under the general title "The Biologist Looks at Human Life," before the Jewish People's Institute, Chicago. Mr. Bryan Patterson, Assistant Curator of Paleontology, visited museums at

Pittsburgh, New York, Princeton, and Washington, to make studies of their collections of Paleocene mammals, this work extending from December into the early weeks of 1940. At the Carnegie Museum in Pittsburgh he read two papers at the annual meeting of the vertebrate section of the Paleontological Society of America. Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology, was elected Secretary of the American Friends of China, Chicago. He conducted a seminar on "Museum Work as a Career" at Grinnell College in Iowa, and made various lecture appearances. Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, was appointed representative of Field Museum to the Conservation Council of Chicago, an organization devoted to the preservation of natural resources. He also lectured before various organizations. Mr. Emmet R. Blake, Assistant Curator of Birds, was honored by election to full membership in the American Ornithologists' Union. He was a frequent speaker before audiences of various kinds, and on radio programs. Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology, presented a scientific paper before the meeting of the American Society of Mammalogists at Baton Rouge, Louisiana, on April 4. Mr. Bryant Mather, Assistant Curator of Mineralogy, presented a paper before the convention of the Rocks and Minerals Association held at Peekskill, New York, on June 17. He was elected a junior member of the American Institute of Mining and Metallurgical Engineers, and was given an honorary appointment as Associate Curator in the Department of Mineralogy, Natural History Society of Maryland, at Baltimore. Mr. Mather and Mr. Henry Herpers, Assistant Curator of Geology, in December attended the meetings at Minneapolis of the Geological Society of America, Mineralogical Society of America, Society of Economic Geologists, and other kindred organizations. Mr. Mather attended a geology conference at the Johns Hopkins University, and made several lecture appearances. Mr. Clifford C. Gregg, Director, was appointed by Mayor Edward J. Kelly of Chicago to membership on the Chicago Recreation Commission. The Director was a guest speaker before numerous organizations, and represented the Museum at various conferences of civic leaders, municipal officials, etc. Among other members of the Museum staff who were in demand as lecturers before various organizations, or on the radio, were: Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles; Mr. John R. Millar, Curator of the N. W. Harris Public School Extension; Staff Taxidermist C. J. Albrecht; Dr. Wilfrid D. Hambly, Curator of African Ethnology; Staff Taxidermist John W. Moyer, and Staff Taxider-

mist W. E. Eigsti. All the lecturers on the James Nelson and Anna Louise Raymond Foundation staff were frequently called upon for lectures before special audiences outside the scope of their regular duties. Mr. Paul G. Dallwig, the Layman Lecturer, made a number of platform appearances before outside audiences, bringing to them much of the Museum information which he conveys to his regular Sunday afternoon audiences at the Museum.

In this Report it is my desire to express my thanks to the Board of Trustees for their loyal and hearty co-operation in the many projects which I have presented to them with my requests for aid and support. It is also my desire to record my sincere appreciation to the members of the staff of the Museum who have so loyally carried on their various duties during the year and during the many years preceding it. Too often these loyal workers are simply taken for granted. Many duties of profound value are performed by dependable and careful workers whose names do not appear in headlines, but on whose accomplishments the success and reputation of the Museum depend.

Continuing their services of the past several years, men and women from the Works Progress Administration have taken an active part in almost all phases of the activities of Field Museum, and have added greatly to the accomplishments of the institution. More than 262,000 hours of work were done by a force of from 125 to 219 persons. The services of perhaps 80 per cent of these workers were interrupted during the year in conformity with the Act of Congress which automatically terminated the services of any worker on WPA after eighteen continuous months of such employment. While many workers laid off under this authority have been reassigned to the project after periods varying from thirty to ninety days, several of those formerly assigned to Field Museum have found places in private employment. The purpose of the layoff after eighteen months of continuous service is defined by the sponsors of the act as a deterrent to the establishment of "careers in the WPA," and to the extent that it has been successful, it has been justified. The effect on Field Museum has been to retard the completion of certain projects, and to make administration somewhat more difficult. In spite of these handicaps, however, the value of the work done under WPA continues to be an important factor in the accomplishments of the Museum.

The number of persons to whom meals were served in the Museum Cafeteria during 1939 is 97,543. In addition, 63,311 used the rooms

provided for children and others who bring their own lunches. To many of the latter, supplementary refreshments, such as sandwiches, hot beverages, soft drinks, ice cream, etc., were furnished from a special lunch counter. Tables and benches are available in these rooms to all who wish to use them, regardless of whether or not they purchase anything from the lunch counter.

The customary thorough attention was given to proper maintenance of the Museum building, its contents, and equipment. Following is a report of the principal activities of the forces working under the direction of the General Superintendent:

For the Department of Zoology approximately 118 lineal feet of "built-in" cases and screens were constructed along the north and south walls of Hall O, which is in preparation for exhibits of fishes. The walls and ceilings of Hall M, the new hall devoted to lower invertebrates, were plastered. Doors and grilles were installed in this hall, the entire hall was decorated, and the exhibition cases were properly placed in time for opening of the hall to the public in May. Two cases in Hall 20 (Hall of Birds) were painted, trimmed and glazed for the opening of habitat groups of the rhea and red grouse. New light boxes, fitted with fluorescent light tubes, were built and installed on all cases in Hall 21 (systematic collection of birds). Construction was begun on two large "built-in" cases, one on each side of the east end of Albert W. Harris Hall (Hall 18). On the fourth floor, an area in the southeast section was partitioned and equipped to form a new office and workshop for the Bird Taxidermist. In the main taxidermy shop the large draw curtains were removed, and replaced with new materials and draw cords. On the third floor, a wire partition was built across Room 78, and a plaster board partition was constructed in Room 99. For the Division of Birds a small cabinet was constructed for storage of eggs; nine new steel storage cases were installed; and eighty pairs of side racks and twenty-one diaphragms were fitted into storage cases previously installed. In the bird and mammal storage cases, 1,600 full-size, and 600 half-size wooden trays were fitted. At the end of the year work was well under way on remodeling Room 87 (formerly the bird taxidermy shop) to provide larger quarters for the Division of Reptiles.

Seven large mural paintings were starched and hung in Hall 25 of the Department of Botany. The case for the Illinois wild flower group in the Hall of Plant Life (Hall 29) was trimmed and glazed.

In the Department of Geology two cases, four feet wide, were altered to match other cases in Ernest R. Graham Hall (Hall 38),

and four new cases were constructed for use in the same hall. Two smaller cases formerly used in Hall 38 were refitted to replace certain cases in Frederick J. V. Skiff Hall (Hall 37). On the third floor a new office was provided for the Assistant Curator of Paleontology by reconstruction of part of an area formerly occupied by the storage room of the N. W. Harris Public School Extension. Two offices, for the Assistant Curator of Mineralogy and the Assistant Curator of Geology, were decorated and equipped. A large map case was made for the filing of maps, and various other tasks were performed in exhibition halls and offices of this Department.

Among services performed for the Department of Anthropology was the completion of six wall cases for the exhibition of archaeological material from Kish, in Hall K. An additional plaster arch was installed in the soffit of the entrance to Hall K from Hall L. In Joseph N. Field Hall (Hall A) a central floor case was built for an exhibit of food bowls, and four "built-in" cases (two at the north, and two at the south end) were constructed to house exhibits of very tall Melanesian ancestral figures and wooden drums carved from tree-trunks. For the office of the Curator of Chinese Archaeology and Ethnology, a large double-sided book stack was built.

The third floor storage room of the N. W. Harris Public School Extension was replaced by provision of space in the south central portion of the ground floor, and racks and work tables were built and installed in this location. The change effected more efficient handling and storing of more than 1,100 Harris cases, which are continually going out to, and returning from, some four hundred schools on the Department's motor trucks. Eight small carrying cases were made for a new type of exhibit being sent out by the Harris Extension, and numerous other tasks were performed for this Department.

In the Library six mahogany cases were built for the filing of maps, and a special mahogany case was constructed to provide safe-keeping for the Museum's collection of extremely rare books which could not receive adequate care in the general book stacks.

Space on the third floor formerly occupied by the Harris Extension was divided into five rooms which were assigned as a workroom for the Library's bookbinder, studios for the Staff Artist and Staff Illustrator, the already mentioned new office for the Assistant Curator of Paleontology, and an additional room for the use of the Department of Geology.

Dispatch and receiving counters, and storage cabinets, were built and installed in the Purchasing Agent's office. At the North

Entrance of the building two extensions were made to the counter fronts to prevent drafts in the Book Shop and behind the admission ticket and checking desk.

In the James Simpson Theatre the upholstered chairs, and all carpeting, were vacuum cleaned, and then sprayed with a new type of mothproofing solution. For the projection of motion pictures, a new motor-operated beaded screen was purchased and installed.

The upholstered furniture in the Director's office was re-covered. Filing cabinets were built for use in three of the general offices. A sketch box was made for the Staff Artist.

The large outdoor sign boards displayed on the Museum grounds were repaired, repainted, and reset. The admission signs used at the north and south entrances were enameled and relettered in gold leaf.

It was found necessary to replace completely the large wooden girders and heavy oak flooring of the large pit scale on the west side of the building. Another task of considerable proportions was the repair and replacement of window sashes, sills, and frames on the second, third, and fourth floors. Such work was done on 100 windows, and for the purpose tidewater cypress, which is especially resistant to decay, was used.

Many joints in the exterior marble facing of the building were cleaned and tuckpointed, and the terra-cotta cornices were repaired. The extent of this work is indicated by the fact that it continued from May to the middle of September. As only those places most urgently in need of repair were attended to, it will be necessary to resume this work in 1940 on other parts of the building. The 1940 program also calls for completion of the overhauling of the terrace wall and balustrades.

A major project undertaken was the replacement of all down-spout stacks and roof heads throughout the building. This was begun in February, and completion is scheduled for early in 1940. The pipe stacks were replaced with extra-heavy wrought-iron pipes, and the heads were especially cast of high-grade metal. The use of these materials, together with careful workmanship, gives assurance of as permanent and trouble-free an installation as it is possible to obtain.

Two new tanks were built for the trucks used in connection with scrubbing. The floors of the service corridors on the ground floor were coated with a new type of floor seal to prevent the concrete surface from flaking into dust. New wash uniforms were provided for the janitorial force.

A large amount of painting, washing, and starching of walls and ceilings throughout the building was done. Included in sections receiving this treatment were the shipping room area, freight elevator shaft, the rooms of the Staff Artist and Staff Illustrator, the Library workroom, the President's suite, the new bird taxidermy shop, the office suite of the Chief Curator of Anthropology, several other offices and workrooms, parts of nineteen exhibition halls, the east and west bridges on the second floor, the vista arches on the first floor, and the walls of the lunchroom. The floor of Room 39 was thoroughly cleaned and sealed. The wall-washing project formerly carried on by WPA workers was reduced early in the year, and abandoned August 18.

The Chief Engineer and the men working under his supervision completed much important work during the year. Some of the more important tasks are outlined in the following summary:

A large amount of electrical installation was performed. The new Harris Extension storage room on the ground floor was wired, and seventeen drop cords and two outlets for electrical tools were installed. Four fluorescent lights were installed over work benches for use in inspections of cases, and 125 feet of air pipe were installed for cleaning cases with air pressure. The room on the fourth floor, converted for use by the Bird Taxidermist, was rewired, and fluorescent lighting was installed. Sixty-five new outlets and drop cords were installed throughout the third floor to improve lighting in workrooms and offices. Two large flood lights were purchased and mounted on the north porch for night lighting. In H. N. Higginbotham Hall (Hall 31, Gems and Jewels) the lights were lowered three feet to improve illumination over the cases. Lighting fixtures on the ground floor were cleaned. Halls 21, M, and O were completely rewired, and fluorescent lights were installed in the cases. In Halls K, 16, 17, 20, 22, and 30 (Kish archaeology, North American mammal habitat groups, Asiatic mammal groups, bird habitat groups, African mammal habitat groups, and Chinese jades) the old Mazda lighting was removed and fluorescent lighting installed. One case in Hall B (North American archaeology), and one in Hall 29 (Plant Life), were also equipped with fluorescent lights. Part of Room 99 on the third floor was equipped with fluorescent lighting for use in matching colors on case accessories. Altogether, 1,021 units of fluorescent lighting were installed during the year. The old ceiling fixtures removed from Halls O and 21 were sold for salvage.

Two insecticide cabinets built by the Department of Botany were wired for automatically controlled heat. The band saw in the

same Department was moved, rewired, and an outlet was provided for a new circular saw. An electric oven was built for the Department of Zoology and wired for automatic heat.

Plumbing and heating work included the installation of a new drain pipe, and lines for hot and cold water, and for gas, from the third floor to the new bird taxidermy room on the fourth floor. A sink and gas stove were also installed in this room. The partitioning of an area formerly occupied by the Harris Extension on the third floor made necessary the installation of new drains, water lines, a sink, and two lavatories. Changes made in Room 87 necessitated installation of new drain pipes and water lines. Larger steam radiators were installed in Rooms 9, 14, 15, 16, 44, 46, and 50 to make them usable as offices and workrooms. Two new steam traps were purchased, and installed on the steam main supplying the southeast section of the building, to increase heating efficiency.

In the Department of Geology a new saw for cutting meteorites was assembled, and sixty saw blades were cut and drilled for it. A jointed bat net frame, seventeen feet long and seven feet wide, was made of brass tubing for use on an expedition of the Department of Zoology.

In the Division of Printing, new friction pulleys were purchased and installed on the job press motors. The motor on the stitching machine was overhauled, and a new motor bed was constructed for the collotype press.

All four boilers were completely relined. A new safety valve was purchased, and installed on the No. 1 boiler. The old circulating tubes in the No. 3 and No. 4 boilers were removed and replaced with new tubes. The tube caps were removed from all boilers and cleaned, and the old gaskets were replaced with new ones. Stokers were overhauled, and new grate links and bars were installed where needed. New baffles were installed in all four boilers. Soot blowers were removed, repaired, and replaced. The breeching and ash vent pipes were thoroughly cleaned. By-pass lines were installed on the No. 1 and No. 2 boilers for better control of the feed water. The feed pump on the No. 1 boiler was dismantled and new impellers installed; that on the No. 2 boiler was sent to the factory for test and change of impellers. The steam feed pump was overhauled; new impellers were installed on the No. 1 house pump; and the vacuum pumps were overhauled and repacked.

The coal conveyor was overhauled and repaired. Five new gears were installed on its shafting to replace worn-out ones. Two

new worm screws were also installed, as were new guide rails, a new chute, and several new sheets. Forty new buckets were made, and new cotter pins were placed in the roller chain.

A new furnace pipe was installed on the hot water heater.

The motor on the fire pump was overhauled, and a new relief valve was installed on the high-pressure tank to comply with a suggestion made by the insurance inspector.

A grade of coal different from that burned in the past was tested and found satisfactory. Its use thereafter resulted in a considerable saving in fuel cost.

Reports in detail of the year's activities in each of the Museum's Departments and Divisions will be found in the pages which follow:

DEPARTMENT OF ANTHROPOLOGY

EXPEDITIONS AND RESEARCH

The Field Museum Archaeological Expedition to the Southwest, again generously financed by President Stanley Field, spent four months (June to October) in a new field, transferring its activities for 1939 to New Mexico, instead of Colorado, where it had conducted excavations in previous seasons. This expedition was the most important archaeological task in the New World ever undertaken by Field Museum, and it resulted in what is probably one of the three most important excavations that have been made in the Southwest in the past twenty years.

The expedition, which was successful from every point of view, was directed by the Chief Curator of Anthropology, Dr. Paul S. Martin. He was assisted by Messrs. Joseph Weckler, John Rinaldo, and Robert Yule, Mrs. Frances Weckler, and Miss Marjorie Kelly. Mr. Weckler was the surveyor and helped direct the excavations. Mr. Rinaldo, Associate in Southwestern Archaeology on the Museum staff, again took charge of the excavated pottery and the stone and bone implements. All photographs were taken by Mr. Robert Yule, Assistant in Archaeology. Mrs. Weckler acted as secretary to the expedition and assisted in excavating burials. Miss Kelly, on the Museum staff as Associate in Southwestern Archaeology, was in charge of all skeletal materials, and assisted Mr. Rinaldo in classifying and counting the potsherds.

To elucidate and justify the statement concerning the extreme importance of this expedition's accomplishments, the following explanation is offered:

The *Basket Maker-Pueblo* complex has been fairly well worked out during the past thirty years by various archaeologists. Field Museum has contributed its share to the knowledge of this complex by its excavations in Colorado during the past ten years. Reports of these excavations are already available.

Some time after 1930 the staff of Gila Pueblo, a research institution at Globe, Arizona, first discovered that in southern Arizona and New Mexico there was a second great culture or complex which has been termed *Hohokam*. From 1934 to 1935 Gila Pueblo archaeologists conducted gigantic excavations in southern Arizona, the results of which delineated various aspects of this culture.

About 1936 the staff of Gila Pueblo undertook some excavations in western New Mexico and later submitted a report on this work. It was therein intimated that there was a third great cultural complex in the Southwest, namely, the *Mogollon*. However, the villages excavated happened to fall in a rather late period (about A.D. 800 to 900). By that time the Mogollon culture had received many traits from the Basket Maker-Pueblo horizon to the north, and some from the Hohokam culture to the west. Such sites as these are called "mixed," and are not so helpful as "pure," or unmixed, sites, in working out the details of a new culture. Many archaeologists disagreed with the conclusions set forth by the Gila Pueblo Staff because they felt that the culture described as Mogollon was merely a hybrid of the Basket Maker-Hohokam traits, or a weak, peripheral branch of the Basket Maker-Pueblo entity.

Dr. Martin, after finishing his researches in southwestern Colorado in 1938, was invited by several archaeologists who were interested in this controversy to conduct an archaeological investigation in the Mogollon country in New Mexico. After a conference in the fall of 1938 at Globe, he decided to do so. A thorough study of the sherd collections at Gila Pueblo revealed four or five promising sites in the west central part of New Mexico about 100 miles north of Silver City, and about 150 miles south of Gallup, near the small town of Reserve. These sites seemed promising because the surface pottery from them consisted of only three types—all plain types. It seemed likely that here would be found pure early phases which might possibly throw light on the Mogollon problem.

Permits for work on these sites in the Apache National Forest were obtained from the Division of Forestry of the United States Department of Agriculture. Dr. Martin and a few of his assistants devoted about ten days to building a camp of rough lumber, inas-

much as it was impossible to make other camping arrangements in the forest.

The excavations were conducted entirely at one village, which was located on a low ridge. Seven pit-houses (out of a total of forty or more) and one surface room were cleared, and many long trenches were dug. The pit-houses were scattered without order along the top of the ridge, and proved to be difficult to excavate because the ground consisted of compact glacial gravels. Each pit-house differed from the others in certain details; but in general it may be said that each was about three feet deep and fifteen feet in diameter, and each was provided with an eastern entrance-way and had one or more rather deep and large pits sunk in the floor (Plate 3). These pits were probably used for cooking purposes, although they might also have served as storage or burial pits. One pit-house was very large (thirty-seven feet in diameter). Inasmuch as post-holes were found in all houses, it is assumed that all were roofed. Burned posts were recovered from a few of these post-holes, treated with paraffin, and shipped to the tree-ring laboratory at Gila Pueblo for study and dating. In all, twenty-five burials were recovered. It sometimes required from two to four days to excavate completely a single skeleton, because of the great care it was necessary to exercise in this work. In a few instances shell bracelets and stone pipes were found associated with burials, but never pottery.

This very important skeletal material is now being repaired and restored by Miss Kelly. It is hoped from this study to learn what racial subdivision of the Mongoloid stock was responsible for the Mogollon culture.

The pottery consisted of three types: a plain, polished brown ware; a rough, unpolished brown ware; and a polished red ware. This pottery is *wholly* and *entirely unlike* any from the Basket Maker-Pueblo or Hohokam cultures. About 15,000 sherds were recovered, from which fifteen or twenty whole vessels will be recovered. This pottery is of extreme value because it probably represents some of the earliest, if not the earliest, pottery of North America.

Stone and bone tools were numerous. Two hundred stone and twenty-five bone implements were recovered. In addition there were found a number of tiny turquoise beads, a carved stone fetish, and five or six delicate shell bracelets. The shell from which these bracelets were manufactured came from the Gulf of California,

about 500 miles distant. These stone and bone implements have been very carefully studied, and many interesting details will be reported in a publication scheduled to appear in 1940. The important thing is that the preponderant majority of these stone and bone implements show *no* relationship whatsoever to any similar implements from the Basket Maker-Pueblo or Hohokam cultures. It is not possible at this time to make any very emphatic statement about these implements, but it probably will be possible to show that the stone and bone implements recovered by Field Museum are typologically related to other very much earlier horizons.

Thus it seems possible to conjecture, if not to state positively, that the Field Museum expedition discovered and excavated during its 1939 season an early pure Mogollon village. This statement is based on the fact that the stone and bone implements, and the pottery and other general features, differed entirely from any found in the Hohokam or Basket Maker-Pueblo cultures. Dr. Martin is of the opinion that what he has discovered and studied with the aid of his assistants does not constitute a hybrid culture or peripheral branch of the Basket Maker-Pueblo complex, but is a manifestation of a third pure and important cultural entity in the Southwest—the Mogollon culture.

Dr. Henry Field, Curator of Physical Anthropology, spent most of his time in 1939 in work on various publications. He completed the first part of *The Anthropology of Iraq*, and in addition continued preparation of *Physical Anthropology in the U.S.S.R.* and *Contributions to the Anthropology of Georgia, U.S.S.R.* Dr. Field also lectured and read papers before various organizations, including the American Association for the Advancement of Science, the Geographic Society of Chicago, and the Archaeological Institute of America. For the general public he lectured by radio on one of the Science Service programs over the Columbia Broadcasting System.

Dr. Wilfrid D. Hambly, Curator of African Ethnology, completed the manuscript *Cranometry of New Guinea*, which was on the press at the end of the year. Dr. Hambly also planned, supervised, and completed a detailed catalogue of osteological material. This catalogue describes all skulls and long bones, their provenance and condition. From it, a student can readily ascertain what material is available, and exactly where it is located. In addition, all African material in storage has been sorted and rearranged, and a card catalogue made for it.



PRINTING IN ANCIENT CHINA

Nine pieces of fifteenth century bronze movable type cast in Korea. The background illustrates another kind of printing—a page-size wood block, in which characters are carved

All characters are in reverse

Bronze type presented to the Museum by Mr Thomas E. Donnelley

UNIVERSITY OF ILLINOIS
URBANA

Dr. Albert B. Lewis, Curator of Melanesian Ethnology, spent the whole year supervising the sorting, cleaning, rearranging, and recording of the large storage collections in his charge. These were housed in four rooms, and were extensive enough to require the constant help of three WPA assistants. Dr. Lewis also visited Buffalo, New York, to arrange an exchange which brought to the Museum a number of rare old Melanesian specimens.

Mr. Richard A. Martin, Curator of Near Eastern Archaeology, spent all of 1939 in research and in cataloguing the hundreds of specimens from ancient Kish. These he arranged for exhibition in Hall K. In all, thirteen cases of this material have been installed this year under Curator Martin's direction.

The Curator of Chinese Archaeology and Ethnology, Mr. C. Martin Wilbur, devoted much of his time to securing Chinese archaeological collections by gift, exchange, and purchase, in order to supplement the Museum's collections from sites or culture periods heretofore inadequately represented. The most notable of his results are listed in another part of this Report. Mr. Wilbur also has been working over plans for a future hall of Japanese archaeology and ethnology. Research on Chinese slavery in the Han period in China, and the writing of a book on that subject, were brought near to completion.

During the greater part of the year, Mrs. Edna Horn Mandel, Associate, Chinese Collections, worked on a detailed catalogue of the collections of Chinese paintings, with a view to establishing more precise attributions to Ch'ing dynasty painters represented. She continued to give invaluable assistance in the study of other Chinese specimens, which must be periodically re-examined in the light of more recent archaeological knowledge. In order to improve her research technique, she spent part of her time at the University of Chicago, and Columbia University, studying history, anthropology, and the Chinese language.

Mrs. Rose Miller, a volunteer working with Mr. Wilbur, is still engaged in the arrangement and cataloguing of more than 3,000 Chinese rubbings of historical monuments, and this work, when finished, will be of great assistance.

Two volunteer associates of Dr. Henry Field's also contributed much to the Museum. Mr. Peter Gerhard prepared the complete catalogue of the map collection in the Museum. This includes 1,100 maps. He also prepared thirteen maps for inclusion in two of

Dr. Field's reports. Miss Anne Fuller assisted with the rearrangement of archaeological material in the study collection.

Reference has already been made to several publications during the year. Others which came from the press were: Volume XXIII, No. 3, *Modified Basket Maker Sites, Ackmen-Lowry Area, South-western Colorado, 1938*, by Dr. Paul S. Martin; Volume XX, No. 3, *Archaeology of Santa Marta, Colombia*, by Dr. J. Alden Mason; Volume 29, *Contributions to the Anthropology of Iran*, by Dr. Henry Field; and Volume 31, No. 1, *Anthropometric Observations on the Eskimos and Indians of Labrador*, by Dr. T. Dale Stewart.

On the press at the end of the year, in addition to the previously mentioned report of Dr. Hambly, was Volume 30, *The Anthropology of Iraq, Part I. The Upper Euphrates*, by Dr. Henry Field.

Thirty-six articles for *Field Museum News* complete the list of publications by the staff of the Department during 1939. Data were furnished also for thirty-two newspaper articles.

ACCESSIONS—ANTHROPOLOGY

The Department of Anthropology received forty-five accessions during 1939. These comprised 1,828 specimens, of which 350 resulted from a Museum expedition, 165 were acquired by exchange, 307 were purchased, and the remaining 1,006 were gifts. A complete list of these accessions is appended to this Report (p. 120), but several deserve special mention here.

Many of the outstanding accessions are of Chinese material. A fortunate purchase gave the Museum a remarkable lacquered and painted wooden coffin grill from Ch'angsha in Hunan province probably dating from the fourth century B.C. A beautiful two-handled pottery jug from an early people living near the Tibetan border was also acquired. It is extremely rare—so far as is known, there is no other like it in any American museum. Other purchases and gifts include a study collection of prehistoric black pottery sherds; a few small bronzes of Shang and Chou date mostly weapons of types heretofore lacking in the collections; and small groups of peasant embroideries, and of shadow-play figures from western China. Mr. Thomas E. Donnelley, of Chicago, augmented the collection of Chinese printing material by a gift of some of the earliest cast bronze movable type in existence, believed to date from the middle of the fifteenth century (Plate 4).

In an exchange with the Buffalo Museum of Science some rare specimens were received for the Melanesian collection. Among them, two funerary *Tridacna* shell slabs are outstanding.

By exchange with Logan Museum, of Beloit College in Wisconsin, the Department was enabled to represent in its exhibits and study collections certain important types of Southwestern Indian pottery, of which no specimens had been available heretofore.

A very valuable addition to the Museum's European archaeological collections was a gift from Mr. Alvan T. Marston, of London, England. It includes sixteen flint implements and one molar tooth of an elephant, all of which were found in association with the Swanscombe skull at Swanscombe, Kent, England.

Mr. Thorne Donnelley, of Chicago, presented three fine drums from Haiti, which are now on display in Hall D (African Ethnology). The particular point of interest about these Haitian drums is their close resemblance to West African prototypes. They were used in Voodoo ceremonies and also in ordinary dances.

CATALOGUING, INVENTORYING, AND LABELING—ANTHROPOLOGY

Thirty-three of the forty-five new accessions were entered, as were portions of two others.

Catalogue cards prepared during the year totaled 2,477. Of these, 1,705 were entered. Since the opening of the first inventory book, the total number of catalogue cards entered is 218,995.

Distribution of catalogue cards for the current year was as follows: North American archaeology and ethnology, 371; Central and South American, and Mexican archaeology and ethnology, 6; European and British archaeology, 273; Chinese, Japanese, Tibetan, and Korean archaeology and ethnology, 107; African ethnology, 38; Madagascar ethnology, 9; Near Eastern archaeology (Iraq, Babylonia, etc.), 817; Siamese ethnology, 6; Philippine ethnology, 4; Melanesian ethnology, 174; and physical anthropology, 672.

For use in exhibition cases, 1,533 labels were supplied by the Division of Printing. These were distributed as follows: Stone Age of the Old World, 529; North American archaeology and ethnology, 462; Malayan ethnology, 24; Near Eastern archaeology, 403; Chinese archaeology, 51; ethnology of the Philippine Islands, 18; Melanesian ethnology, 41; Hall of Man, 5.

Additional photographs numbering 154 were mounted in the departmental albums. Four new albums were opened. A special

file of about 1,000 racial type photographs has also been set up under the direction of Dr. Field. Work was continued on the extensive East Asiatic photograph file.

INSTALLATIONS AND REARRANGEMENTS ANTHROPOLOGY

Hall K, which will house exhibits of material from the Near East, is rapidly nearing completion. Under the direction of Curator Richard Martin, Preparator Herbert E. Weeks installed thirteen cases, including pottery, tools, jewelry, etc., from Kish. Notable among the new cases completed is one containing a scale model of a Kish chariot, complete with horses, driver, warrior, and weapons. The horses and men were modeled by Mr. Frank Gino, WPA assistant. The chariot, its fittings, and the weapons of the men, were made by Mr. Tokumatsu Ito, Ceramic Restorer on the Department staff.

One of the new cases (No. 38) installed in Hall 32, is worthy of particular notice. In it are life-size models of a Chinese boy and girl, dressed in their school clothes, and surrounded by their school materials, toys, etc. The contents of this interesting case were secured through the assistance of Mrs. Elizabeth S. Stelle, of Tung-hsien, near Peking.

In Hall 7 a new type of archaeological exhibit has been attempted. It is called "The Story of Southwestern Pottery," and shows, by means of a table in genealogical style, the evolution of Southwestern Indian pottery. This was planned and prepared under the supervision of Chief Curator Paul S. Martin.

A new case, finished in wood veneer in order to show porcelain to better advantage, has been installed in George T. and Frances Gaylord Smith Hall Archaeology of China. It contains white porcelain presented by the late Mrs. George T. Frances Gaylord Smith. An added feature is the installation of lights which are controlled by the spectator, so that he may examine patterns underneath the glaze, which can be seen only by directed light.

Another interesting installation, in Hall D (African Ethnology), consists of ceremonial masks, many of which are rare. A new case of Solomon Island material was installed in Joseph N. Field Hall (Hall A), as well as several miscellaneous exhibits.

A total of 271 miscellaneous specimens were restored during the year. The inside of the glass in exhibition cases in all halls was thoroughly cleaned, and specimens were adjusted where necessary. With the assistance of WPA workers, the huge storage collections

were cleaned and rearranged. A skilled plaster worker repaired and reconstructed pottery from Melanesia and the southwestern United States, in addition to reconstructing the foundation for, and painting and installing, the Kish chariot group.

Many photographs were expertly prepared for Chief Curator Martin's report on the 1938 Southwest expedition, and many more were made during the 1939 expedition. Preparation was begun also on maps and ground plans for inclusion in the 1939 report.

Two volunteer associates have given invaluable help in Southwestern archaeology. Mr. John Rinaldo and Miss Marjorie Kelly, of the University of Chicago, continued their work on the material excavated by Dr. Martin in 1938. Both then joined the 1939 expedition as volunteers in the field. Since their return, they have been engaged in restoration and research upon the 1939 material.

The subject-geographical index of all the specimens in the Department is well under way. The largest section, that of North America, is finished in regard to the actual indexing, and its final typed form is approximately half complete. Already there have been many opportunities to prove its efficiency, even in its present incomplete state.

All labels in exhibition cases have been checked for correctness, and the locations of all specimens in the storerooms so far worked over have been entered in the inventory books.

A technical and editorial assistant worked most of the year on the extensive collections of Southwestern Indian pottery. These specimens have never been studied in the light of modern nomenclature and classification, and when this task has been completed, the results will be published.

DEPARTMENT OF BOTANY

EXPEDITIONS AND RESEARCH

With funds supplied by Mr. Sewell L. Avery, a Trustee of the Museum, an expedition was conducted in Guatemala to gather material for a flora of that country now in preparation by Curator Paul C. Standley and Assistant Curator Julian A. Steyermark. The exploration was undertaken by Mr. Standley, who sailed from New Orleans November 16, 1938, arriving at Puerto Barrios on the north coast of Guatemala a few days later. He spent six months in the country, and returned to Chicago about the middle of May, 1939.

During these months more than 30,000 herbarium specimens were obtained, representing 15,000 separate collections of plants.

The present progressive government of Guatemala has constructed excellent automobile roads that reach almost every part of the country, except the large and sparsely populated Department of Petén. These roads greatly facilitate exploration, and Mr. Standley was able to visit and collect in twenty-two of the twenty-four departments of the country.

For about half the time headquarters were maintained at the ancient and picturesque city of Antigua, former capital of Guatemala which was destroyed by an earthquake more than 150 years ago. From this center collecting excursions were made in all directions, principally to various parts of the highlands, at elevations ranging from 4,000 to 8,000 feet. A trip was made to the Oriente or eastern Guatemala, toward the Salvador border, and shorter trips made possible an acquaintance with the flora of the Pacific coast. Although long ago accessible to visitors, this part of Guatemala had been neglected by botanical collectors, but was found to have a highly varied flora, notable for extensive forests of pine and oak, and a great variety of showy-flowered plants of many families. Perhaps no other region exhibits such a display of wild dahlias, scarcely inferior to ordinary cultivated ones, as well as wild marigolds (*Tagetes*), zinnias, and other plants with brilliantly colored flowers.

A month was spent near Quezaltenango, at an altitude of almost 8,000 feet—a cold region, devoted to cultivation of wheat and maize, with miles of hedges of *maquey* or century plants that recall similar landscapes of central Mexico. From Quezaltenango trips were made to the bleak northern mountains of Huehuetenango, whose flora is typically Mexican, and to the rich rain forests of the Pacific *bocacosta* (the middle slopes of the mountains facing the Pacific), where much high-grade coffee is grown. Other excursions extended through the peculiar mountains of the Department of San Marcos, which are covered with white volcanic sand that appears at a distance like newly fallen snow. These mountains are dominated by pine, oak, and alder forest, and the unfolding, brilliant green leaves of the alders in March give the landscape an appearance far from tropical. At high elevations there are dense forests of tall cypress and fir.

From Quezaltenango, Mr. Standley ascended one day with an Indian guide the Volcano of Santa María, one of the highest and most famous volcanoes of Central America (almost 14,000 feet), which, at least at this dry season, afforded a rather disappointing flora, except for the handsome groves of pyramidal and columnar



ILLINOIS WOODLAND SCENE

A new group in the Hall of Plant Life (Hall 29). This exhibit represents a locality in Cook County just beyond the forest preserves at the moment of the maximum development of the characteristic spring flora

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cypress (*Cupressus Benthamii*). He had collected previously on the middle and upper slopes of some of the central volcanoes—Pacaya, Agua, Fuego, and Acatenango.

After leaving the Occidente, another month was passed about Cobán, center of the coffee region of Alta Verapaz. This area, long celebrated for its varied flora, is noteworthy for its great forests of pine and sweet gum (*Liquidambar*), and for its many orchids. One of these, the *monja blanca* or white nun (an albino form of *Lycaste Skinneri*), is the national flower of Guatemala.

Later, small collections were made in the vicinity of Zacapa and Chiquimula, a semi-desert area with many treelike cacti. Several weeks were spent finally on the north coast, the principal banana-producing region, where there is abundant rain forest, and a great variety of trees and shrubs. One of the most famous trees of the coast is the Guatemalan cow tree, *Couma guatemalensis*, first discovered here by Mr. Standley some seventeen years earlier.

The results of this expedition were more satisfactory than had been anticipated, chiefly because of convenient transportation, and the co-operation freely extended by several persons and organizations. Dr. J. R. Johnston, Director of the National School of Agriculture of Chimaltenango, was particularly helpful, and accompanied Mr. Standley to several regions of exceptional interest, including a tour of the northern and western departments, through the valley of the Río Blanco, the fir forests of Totonicapán, and many other localities. Don Mariano Pacheco Herrarte, of the Department of Agriculture, extended much practical assistance in the course of the expedition. Professor Ulises Rojas, of Guatemala City, was an efficient guide to various portions of the Occidente, especially the attractive region of Finca Pireneos, below Santa María de Jesús, in the Department of Quezaltenango. Mr. and Mrs. B. B. Lewis, of Guatemala City, were generous in hospitality and assistance, as were also Mr. and Mrs. L. Lind Petersen, of Finca Zapote, in the *bocacosta* west of Escuintla. Last and not least, acknowledgments are due to the United Fruit Company, especially to Mr. George B. Austin of Puerto Barrios, and to Dr. Wilson Popenoe, proprietor of a well-known historic house in Antigua.

The botanical exploration in Guatemala is being continued into 1940 with funds supplied by President Stanley Field. Assistant Curator Julian A. Steyermark left Chicago late in September and proceeded by way of New Orleans to Puerto Barrios. During the three months already passed in the field, he has devoted his atten-

tion to the Oriente or eastern Guatemala, an area visited casually by Mr. Standley. Dr. Steyermark worked for some time from Zacapa visiting the Sierra de las Minas and other localities with abundant vegetation. He then botanized near Chiquimula, Concepción de las Minas, Jutiapa, and other towns of the Oriente. He has attempted particularly to obtain collections during the wet season, since the vegetation withers quickly after the summer rains cease.

Dr. Steyermark already has assembled a large series of specimens and plans to spend several months more in the field, especially in the rain forests of western Guatemala, which still are little known to science. The ample material from these two expeditions, with a large amount previously existing in the Museum Herbarium affords much data for a descriptive flora of Guatemala.

During the summer of 1939 Dr. Steyermark made several brief trips to Missouri, to continue his studies of the vegetation of that state, in which he has been interested for many years. Special attention was devoted to spring plants of Missouri, about which he has prepared a paper for publication. These visits resulted in the collecting of a large quantity of herbarium material, for addition to the Museum's permanent study series. He obtained a number of new records for the Missouri flora, and particularly for his *Spring Flora of Missouri*. During the year he completed and submitted for publication this important work, upon which he has been engaged for several years.

The *Spring Flora of Missouri* is a descriptive account, with keys for determination, of all flowering plants known to bloom in Missouri before June 1. It is to be issued jointly by the Missouri Botanical Garden and Field Museum. The description of each species is accompanied by an original illustration, prepared under Dr. Steyermark's direction at Field Museum by artists supplied by the Work Progress Administration.

Dr. Francis Drouet, Curator of Cryptogamic Botany, accompanied by Mr. Donald Richards, of the University of Chicago, left in October on an expedition financed with funds furnished by President Stanley Field. The object was the collection of algae and other lower plants for the Cryptogamic Herbarium. The first collecting centered about Las Vegas, New Mexico, and the work was continued in the vicinity of Tucson, Arizona. The last six weeks of the year were devoted to intensive collecting in various parts of Sonora. Several weeks were spent about Hermosillo, capital of that Mexican state, with excursions into the mountains and to the

Gulf of California. Exploration was conducted as far south as Guaymas, Sonora, and along various routes from there into the mountains. Great success was reported, especially in respect to the collecting of algae and mosses. A large series of flowering plants was also assembled. The party returned to the United States at the end of the year.

Mr. Llewelyn Williams, Curator of Economic Botany, who was given leave of absence in 1938 to enter the service of the government of Venezuela, was expected to return to Field Museum early in 1940, but his furlough has been extended to permit further exploration. He is acting as aid to Professor Henry Pittier, veteran botanist of tropical America, in botanical exploration of Venezuela. During 1939 he engaged in an expedition to the Río Caura, a little-known area, where he obtained a large and important series of plant material, consisting of herbarium specimens and wood samples. Data obtained there will supply important information regarding botanical features of this neglected portion of the Venezuelan Guiana.

Mr. J. Francis Macbride, Associate Curator of the Herbarium, returned in December from Europe, where he has been engaged since late in the summer of 1929 in photographing type specimens of tropical American plants. Thus is concluded a Museum project covering more than ten years. Begun in 1929 with funds supplied for three years by the Rockefeller Foundation, the project was thereafter continued at the expense of the Museum until the end of 1939. During this time there have been photographed more than 40,000 type and other historic specimens, representing almost as many species of plants, chiefly South American. During 1939 the Museum received 4,021 negatives made at the Muséum National d'Histoire Naturelle in Paris.

The vast number of types photographed by Mr. Macbride covers the greater part of the plant species described from South America, and they give to Field Museum probably a better and more authentic representation of South American species than exists in any other institution. A great number of the photographs are accompanied by fragments or complete specimens, which greatly enhance their value for study purposes.

Begun in 1939 at the Berlin Herbarium, the photographic work was continued at Munich, Copenhagen, Geneva, Madrid, Vienna, and Paris. In view of the present precarious condition of these historic collections, due to perils incidental to the European war, the importance of such type photographs can scarcely be exaggerated.

If, as is quite possible, some of these historic collections should be destroyed, the accuracy of systematic classification or identification of plant species would be imperiled, and only these photographs, with the fragments or specimens that accompany them, would be available for future students of American plants.

The assembling of this extensive series of historic photographs and specimens is without question the most important project in systematic botany undertaken in America. Its value is recognized by all botanists who have accurate knowledge of it. The photographs seem to be most highly esteemed by the enterprising botanists of Argentina and Colombia, whose difficulties regarding types are similar to those of North American botanists. Many requests are received for them, and during the past year 11,796 such prints were supplied to botanists of North and South America at cost, or in exchange for similar type photographs or for specimens desired by Field Museum.

During 1939 an exceptionally large number of plant collections has been received for study by the Herbarium staff, principally from Mexico and Central and South America. So extensive was this material that at the end of the year a large quantity of it was still awaiting study. Care of the Herbarium and handling of currently received collections were greatly facilitated by the employment throughout 1939 of a large number of clerks, typists, and mounters supplied by the Works Progress Administration of the federal government.

There have been mounted and distributed into the Herbarium 52,271 sheets of specimens and photographs. More than 2,130 typewritten descriptions of plant species, prepared in the Department or received in exchange, also have been added. These descriptions, when available in the study series, obviate consultation of the library and greatly facilitate determination and study of new or old material. These figures are in excess of those for 1938, and are a gratifying evidence of the rapid growth of the Herbarium and its increase in permanent scientific value. The total number of specimens in the Herbarium at the end of the year was 991,343. The collection is exceptionally rich in its representation of plants of tropical America, especially those of Mexico and Central America, Venezuela, Brazil, and Peru.

Work of mounting current collections has been kept well up to date, and at the end of 1939 only a relatively small quantity of material awaited preparation. Distribution into the Herbarium



PRIMITIVE OLIVE OIL PRESS IN NORTHERN AFRICA

One of the series of murals recently completed by Mr. Julius Moessel for the Hall of Food Plants (Hall 25)

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kept pace with the mounting, thus making important new collections immediately available for use. Some progress was made in cleaning and repairing sheets already in the study series in the herbarium of flowering plants. Many hundreds of new covers for genera and species were prepared, and the alphabetical and geographic filing was checked and corrected in many groups.

The Curator of Cryptogamic Botany, Dr. Francis Drouet, has been occupied with varied research during the year. With Mr. William A. Daily he completed a revision of the planktonic freshwater species of *Microcystis*. A report on this work, based upon collections in Field Museum and certain large herbaria of Europe and North America, was published by the Museum in December. Work upon a treatment of the filamentous Myxophyceae in the herbarium accumulated by Francis Wolle was also completed and published. A list of the Myxophyceae of Maryland by the Curator was published early in the year. Much time has been occupied with the preparation of a myxophycean flora of Jamaica, a revision of the North American species of *Plectonema*, and a treatment of the filamentous Myxophyceae of northeastern North America. Work on the first two papers is expected to be completed early in 1940. In preparation for them, the Curator visited the New York Botanical Garden in January, and Albion College, the University of Michigan, and Wayne University in February.

Field work was carried on in Indiana and Illinois on several occasions by Dr. Drouet in company with Mr. Donald Richards, Dr. G. T. Velasquez, and others.

A major project completed during 1939 was the renovation of the packaging and mounting of specimens in the algal collection. With the exception of the larger marine algae, the specimens are now filed in paper packets, each mounted upon a single herbarium sheet. It is hoped that this arrangement will give impetus to monographic work among these plants. A very material beginning was made toward a similar renovation of the collection of mosses by Mr. Donald Richards of the Hull Botanical Laboratory, University of Chicago. In the mounting of specimens in the cryptogamic herbarium, much credit is due the workers supplied by the Works Progress Administration.

Four parts of the Botanical Series were issued during the year, the most voluminous being the sixth and final part of Volume XVII, consisting of two papers by Dr. E. E. Sherff, Research Associate in

Systematic Botany. These papers are entitled *Hawaiian Euphorbiaceae* and *Labiatae* and *Compositae*.

Of Volume 20, three parts were printed, all devoted to algae: No. 1, *The Myxophyceae of Maryland*, and No. 2, *Francis Wollé's Filamentous Myxophyceae*, both by Curator Francis Drouet; and No. 3, *The Planktonic Freshwater Species of Microcystis*, by Dr. Drouet and Mr. William A. Daily.

Two botanical leaflets were published, both written by Miss Sophia Prior. They are No. 23, an account of *Carnivorous Plants* and "*the Man-eating Tree*," and No. 24, issued just before the Christmas holiday season, entitled *Mistletoe and Holly*.

A few abstracts and reviews of current literature were prepared by members of the Department staff for the periodical *Tropical Woods*, edited at Yale University by Professor Samuel J. Record, Research Associate in Wood Technology at Field Museum.

The staff contributed numerous signed articles and brief notes to *Field Museum News*, and supplied information for newspaper articles. Curator Standley and Assistant Curator Steyermark published during the year a number of short papers dealing with plants of the United States and tropical America. Several other manuscripts by members of the Department staff, based on studies of the Museum collections, have been prepared for publication or are nearing completion.

During the year more than 19,600 specimens of plants were submitted to the Department for study and determination. These were principally from Mexico, Central and South America, and the United States. Most of this material was retained at the Museum, and only a small part had to be returned to the senders. Numerous local specimens that were not retained for the Herbarium were brought to the Museum for naming by residents of the Chicago region, particularly students and teachers. Hundreds of inquiries were answered by letter, telephone, and interview, regarding the most varied aspects of botanical science.

Throughout the year the Herbarium was consulted by visiting botanists from near and remote parts of the United States, and from several foreign countries. Much use has been made of it by scientists and students from the educational institutions in or near Chicago, or elsewhere in Illinois or neighboring states. It is the only large herbarium within a radius of several hundred miles, and this region possesses numerous educational centers at which work in systematic botany is carried on. Some of the visitors who came to study crypto-

gams remained for several weeks. The collections, of course, were used constantly by the Department staff, for work in determination and as the basis of original studies.

ACCESSIONS—BOTANY

In 1939 there were received in the Department of Botany 380 accessions, comprising 88,514 items. The total number of accessions received was approximately the same as in 1938, but the number of specimens included in them was seventy-five per cent greater. The accessions included material for the exhibits, the Herbarium, and the wood and economic collections. Classified by sources, 18,635 came as gifts, 20,842 in exchange, 4,974 were purchased, 37,568 were obtained by Museum expeditions, 4,021 were negatives of type specimens made in Europe by Associate Curator J. Francis Macbride, and 2,474 were photographic prints transferred from the Museum's Division of Photography.

Of the total receipts, items for the Herbarium amounted to more than 87,000, including plant specimens, photographs, typed descriptions, and type negatives. The largest accession of the year consisted of approximately 30,000 specimens collected in Guatemala by Curator Standley, as described upon a preceding page. Among other material gathered by members of the Department staff were 5,107 specimens from Missouri, obtained by Assistant Curator Steyermark, and 1,730 Venezuelan plants collected by Curator Llewelyn Williams.

The largest of the exchanges received during the year consisted of 7,050 specimens forwarded from Paris by the Muséum National d'Histoire Naturelle, through the Director (Phanérogamie), Dr. Henri Humbert. This collection consists chiefly of historic material from tropical America, and supplements the series of type photographs made in the Paris Herbarium by Associate Curator Macbride. A collection of similar nature consisting of 2,700 specimens was transmitted by the Conservatoire et Jardin Botaniques, Geneva, through the Director, Dr. B. P. G. Hochreutiner. Both of these sendings continue the liberal contributions made by these institutions in former years.

Other important exchanges received during 1939 include 1,446 sheets of Chinese plants, from the Arnold Arboretum, Jamaica Plain, Massachusetts; 188 specimens of California plants, from the California Academy of Sciences, San Francisco; 430 Pennsylvania plants from the Carnegie Museum, Pittsburgh; 330 plants of North and

South America, from the Catholic University, Washington, D.C.; 643 Panama plants from the Missouri Botanical Garden, St. Louis; 162 South American specimens from the Museo Argentino de Ciencias Naturales, Buenos Aires; 301 Uruguayan plants from the Museo de Historia Natural, Montevideo; 1,157 South American specimens from the New York Botanical Garden; 1,185 specimens and typed descriptions from the United States National Museum, Washington, D.C.; and 765 specimens of Mexican and Central American plants, from the Herbarium of the University of Michigan, Ann Arbor.

Gifts of phanerogamic material consisted of 16,478 items, and included much of the most valuable material that reached the Herbarium during the year. Outstanding among them was a series of 1,772 specimens of Brazilian plants, collected by Professor Mello Barreto and presented by the Jardim Botânico of Belo Horizonte. Other South American collections received by gift included 204 Colombian plants from Brother Apolinar-María, Bogotá; 80 Colombian specimens from Brother H. Daniel, Medellín; 973 Venezuelan plants from the Dirección Técnica of the Ministerio de Agricultura y Cría, Caracas, transmitted by Professor Henry Pittier; 229 Peruvian plants from Professor J. Soukup, Puno; and 95 Peruvian specimens from Dr. César Vargas G., Cuzco.

An unusually large amount of Central American material was received during 1939. Among gifts may be mentioned 767 Guatemalan plants presented by the collector, Don José Ignacio Aguilar G., Guatemala; 150 specimens from Mexico and Central America, from Mrs. George Artamonoff, Chicago; 135 Panama plants from Miss Marjorie Brown, Bennington, Vermont; 130 Costa Rican specimens from the Centro Nacional de Agricultura, San Pedro Montes de Oca; 135 Costa Rican plants from Professor Winslow R. Hatch, Hanover, New Hampshire; 192 Costa Rican plants from the Museo Nacional, San José, through the Director, Professor Juvenal Valerio Rodríguez; and 255 Guatemalan plants collected and presented by Professor Carl L. Wilson, Hanover, New Hampshire.

Among gifts of plants collected in other areas are 2,145 specimens from the Department of Botany of the University of Chicago; 711 specimens and photographic negatives, principally of Hawaiian plants, from Dr. Earl E. Sherff, Chicago; 191 Mexican plants from Mr. Richard A. Schneider, Kankakee, Illinois; 1,102 specimens of United States plants, many of them collected long ago in the Chicago region, presented by Mr. Gordon Pearsall, River Forest, Illinois;

600 Mexican plants from Mr. Harde LeSueur, Austin, Texas; 620 Mexican plants from Professor Leslie A. Kenoyer, Kalamazoo, Michigan; 350 Illinois plants, from the Illinois State Museum, Springfield; 628 sheets of Arkansas plants from the Agricultural and Mechanical College, Monticello, Arkansas; 269 United States plants from Mr. Hermann C. Benke, of Chicago, in continuation of his former extensive donations of herbarium material; 161 Philippine plants, from the Botanical Museum of Harvard University, Cambridge; 165 plants of Texas and Mexico, from Mr. George L. Fisher, Houston, Texas; 1,650 plants of the western United States, from Dr. Herbert M. Evans, Berkeley, California; and 658 specimens of Mexican plants, collected by Mr. Virginus H. Chase and presented by Mr. Harry Hoogstraal, Chicago.

For the Cryptogamic Herbarium, 5,643 specimens were accessioned in 1939. Of these 2,016 were received as gifts or through collecting by members of the staff; 1,448 were received in exchanges with other institutions and individuals; and 2,179 were received by purchase.

Among the more important gifts received are 305 marine algae of North America and Italy collected by Professor I. F. Lewis, University of Virginia; 256 miscellaneous cryptogams from the Estate of Abigail Butler; 257 algae of the southern Appalachian Mountains, from Professor Harold C. Bold, of Vanderbilt University and Barnard College; 138 algae of the north central states from Mr. William A. Daily, of the University of Cincinnati; 172 cryptogams from the herbarium of Paul Blatchford, chiefly from Illinois and New England, received from Mr. Gordon Pearsall, of Chicago; 105 cryptogams of Missouri, from Mrs. Cora Shoop Steyermark, Chicago; 52 algae from Mr. Preston Smith, of Oberlin College; and 45 specimens of algae from Dr. G. T. Velasquez, of the University of the Philippines.

The collections made by members of the Museum staff consist principally of 205 cryptogams of Illinois and Indiana obtained by Curator Francis Drouet in company with others; 87 algae collected by Mr. John R. Millar, on the Sewell L. Avery Expedition to Nova Scotia, 1938; and 58 cryptogams collected in Missouri by Dr. Julian A. Steyermark. In addition, a thousand or more cryptogams collected by Mr. Paul C. Standley were received as a result of the Sewell L. Avery Expedition to Guatemala, 1938-39.

The chief lots of specimens received in exchange are 575 cryptogams of California and the South Pacific islands from Dr. F. R.

Fosberg, formerly of the University of Pennsylvania; 257 algae of the Philippines from the Departments of Botany of the University of Michigan and the University of the Philippines; 202 miscellaneous algae from the Naturhistoriska Riksmuseet, Stockholm; 184 Myxophyceae from Mr. J. C. Strickland, of the University of Virginia; 72 miscellaneous algae from the New York Botanical Garden; and 54 algae of Massachusetts from Miss Alma Rutledge, Baltimore.

Purchases included Erbario Crittogamico Italiano, Series II, 11 fascicles 850 specimens; Farlow, Anderson and Eaton, *Algae Americae Borealis Exsiccatae*, 229 specimens; *Hepaticae Selectae et Criticae*, Series 11 (50 specimens); *Musci Selecti et Critici*, Series 6 50 specimens; and Rabenhorst, *Algen Europas*, 1,000 specimens.

All of the specimens thus received have been filed in the Cryptogamic Herbarium.

The herbarium of Francis Wolle, consisting of more than 2,000 specimens of cryptogams, mostly algae, was deposited on loan in the Museum's Cryptogamic Herbarium by Mr. Philip W. Wolle, of Princess Anne, Maryland, in January, 1939. Along with many specimens collected by the Rev. Mr. F. Wolle himself, the collection contains most of the material received by the Rev. Mr. Wolle in exchanges with European and American botanists. The first twenty-one volumes of Wittrock and Nordstedt, *Algae Aquae Dulcis Exsiccatae*, are included. The greater portion of the herbarium has now been mounted and placed on file in the general collection.

Of specimens received for the exhibits the most notable was a splendid plank, two feet wide, of the west coast mahogany of southern Mexico and Central America—*Swietenia humilis*. This was received as a gift from Mr. L. Lind Petersen, Escuintla, Guatemala.

To Mr. Edwin C. Guest, of the Rubber Institute, Kuala Lumpur, Federated Malay States, the Department of Botany is indebted for a fruiting branch of durian, and for fresh nipa palm seeds for growing.

Garfield Park Conservatory, through its Chief Horticulturist, Mr. August Koch, has as usual co-operated with the Department of Botany in many ways, by furnishing specimens of plants for preservation in the Herbarium and for use in the exhibits, and by growing plants for study or exhibition from seeds received from collectors abroad. The old Oriental lotus seeds germinated in the Museum in 1938 were thus grown in Garfield Park and brought into flower during the past summer. In the same manner, many palms in Garfield Park Conservatory have been grown from seeds collected on Field Museum expeditions. In the absence of greenhouse facilities

in the Museum's Department of Botany, the co-operation afforded through the courtesy of Mr. Koch has been particularly valuable.

Important loans were received, from the United States Department of Agriculture, of photographs of American forest types made by the Forest Service, and of a microfilm of the botany catalogue of the Department of Agriculture Library, from which its extensive subject catalogue may be duplicated here.

CATALOGUING, INVENTORYING, AND LABELING—BOTANY

During 1939 there were distributed in exchange to institutions and individuals in North and South America, and Europe, 70 lots of material, amounting to 8,666 items, including herbarium specimens, wood specimens, photographs, and typed descriptions of plants. One item sent was a botanical index, consisting of about 100,000 separate cards. Sixty-six lots of material, comprising almost 8,000 separate items, were received on loan for study or determination, and 85 lots, including 11,627 specimens, were lent for determination or for use in monographic studies.

Records of botanical accessions, loans, and exchanges have been kept by Miss Edith M. Vincent, Librarian of the Department. Geographical and collectors' indexes of material in the study series have been kept up to date, as has also the card catalogue of the economic collections (including a new systematic index of the study collection of woods), with the aid of workers from the Works Progress Administration. Many of these workers gave a large amount of assistance in arrangement and reorganization of reference and exchange material, herbarium and economic specimens, and woods. They wrote more than 165,700 catalogue cards for permanent and temporary files, besides many thousands of herbarium and wood collection labels.

Labels have been prepared, printed, and installed for all current additions to the exhibits, and many old ones have been revised. The last of the few remaining black exhibition labels have finally been eliminated.

INSTALLATIONS AND REARRANGEMENTS—BOTANY

In the Hall of Food Plants (Hall 25) the series of murals begun last year was carried forward during the year by Mr. Julius Moessel, and is approaching completion. These murals all have reference to the subject matter of the exhibits which they supplement. They consist of a series of scenes portraying the principal

human activities growing out of man's quest of vegetable food, viz., the gathering, cultivation, and harvesting of food plants, and the preparation and distribution of their products. The series begins with scenes of simple food-gathering and a primitive type of planting, followed by hoe-cultivation, rice-growing under irrigation, plowing and broadcast sowing of grain, threshing and milling, sugar and edible oil production, transportation and trade in exotic products, water-borne commerce with foreign countries, a tropical market scene, and a present day wholesale vegetable market.

In general, the murals parallel the arrangement of the exhibits in the hall. The scenes showing planting and preparation of the soil for crops represent various types of cultivation of food plants in different parts of the world.

Some form of cultivation of grain having been the basis of civilization everywhere, several murals are devoted to this important subject. Sugar production is portrayed in a scene showing a colonial sugar plantation in Brazil where sugar cane was first grown on the American continent. The one picture showing vegetable oils is based on the recent discovery of ancient remains of a primitive type of olive oil press on the north coast of Africa. The spice trade is represented by a caravan scene from the region north of the Persian Gulf. The beginning of water-borne commerce in foreign food products is depicted in the mural showing French coffee buyers in Arabia. This was reproduced in last year's Report. A mural depicting a market scene in southern Mexico is followed by a picture of a present-day wholesale vegetable market, such as may be found in any large northern city of the United States. The series will be closed with two maps. One will show the ancient trade-routes over which contact was maintained between the East and West up to the time of the discovery of the sea routes and the resultant general interchange of cultures and products which profoundly changed the food plant situation everywhere. The second map will show the main centers of origin of food plants and of the beginnings of their cultivation.

The artist, Mr. Moessel, is a well-known mural painter of large experience and ability. The pictorial excellence of the pictures and their artistic qualities are evident to all who have seen them. They are not only highly decorative, forming an interesting and instructive feature of the hall which they embellish, but they contribute effectively to an appreciation of the exhibits to which they relate. It may be said that with the completion of this series of murals, the

food plant exhibit as a whole becomes more distinctly a unit, rather than merely a collection of classified and labeled items. The presence in the hall of a collection of palms interferes little, if at all, with the total result achieved.

The principal addition to the exhibits in the Hall of Plant Life (Hall 29) was a large diorama, or so-called background group, showing the vegetation of a characteristic Illinois woodland (Plate 5). This group, which should please all those interested in the beauties of the local flora as it still exists in the environs of the city, is placed in the northwest corner of the main botanical hall where it adjoins the alpine scene completed last year. The new group reproduces a selected spot in mixed woods at the edge of the present forest preserves, as it appears late in May when the leaves of the bass-wood are still only half expanded and those of the white oak still drooping and pink. The ground is covered with phlox, Virginia blue-bells, and blue-eyed Mary, with marigolds along the streambed, and with white and red trillium, adder's tongue, Jack-in-the-pulpit, geranium, May apple, and columbine on the rising ground to one side. It is a typical local spring flower assemblage, including the shrubs and vines common in the local woods.

The Museum is indebted to the Superintendent of the Cook County forest preserves for several tree trunks that form a part of this exhibit. The reproduction of the numerous plants in this group was carried out in the work shops and laboratories of the Department of Botany under the supervision of Mr. Emil Sella, Chief Preparator of Exhibits, aided by Mr. Milton Copulos, Artist-Preparator, and many skilled workers supplied by the Works Progress Administration. The background painting is the work of Mr. Arthur G. Rueckert, Staff Artist.

This local woodland scene is the second of six groups planned for Hall 29 to show types of plant associations characteristic of different environments. The present group, with its painted landscape setting, serves as an example of woodland vegetation of the northern temperate zone.

Other groups on the same plan, but representing very different environments with very different vegetation, are in process of preparation, and it is to be expected that some of these will be completed during the coming year.

So much work was required in the construction of this group that few other additions could be made to the exhibits in the hall. Among these few, the most recent is a durian fruit on its branch,

reproduced from a specimen sent from the Federated Malay States by Mr. Edwin Guest, who was a visitor to the Museum about two years ago. It is one of the very few such specimens for exhibition obtained from a person not directly connected with the Museum, but collected in accordance with Museum instructions. Carefully packed, it arrived in excellent condition. The durian, which has the reputation of being the most evil-smelling yet perhaps the most delicious of fruits, had long been desired for the exhibits. It was the one fruit lacking to give the Museum a rather full representation of the principal kinds of tropical fruits, and its acquisition is recorded with satisfaction.

In recent years efforts have been made to add also to the representation of the fruits of the temperate zone, and Mr. Copulos completed early in the year a handsome reproduction of a branch of Bartlett pear collected for the purpose many years ago in Michigan. Some work was done during the year also on other such exhibits for the Hall of Plant Life.

Completed for Hall 28, which is devoted to plant raw materials and products, was a branch of the Mexican rubber tree, *Castilla elastica*, with a trunk of the same, showing scars of incisions for tapping. This has been placed with the other rubber trees. The Mexican rubber tree is of interest as being the species selected for planting when rubber plantations were first established. Its latex was known in pre-Columbian days and was used by the Indians for their rubber balls.

Some progress was made on a diorama of a primitive starch-making plant for Hall 25. For Charles F. Millspaugh Hall (the Hall of North American Woods) some fifteen transparencies were colored, and frames were prepared for about twice that number.

With many new photographs of forest types available, lent by the United States Forest Service, good progress with transparencies for this hall should be made during 1940.

In the Hall of Foreign Woods (Hall 27) several new installations were made, including a case of Philippine woods, the gift in large part of the Cadwallader-Gibson Company, of Los Angeles, California; and a case of Mexican woods containing material presented by the Mexican government, the Mexico Land Transportation Company, and Mr. S. M. Le Barron, of New Orleans. An assortment of Russian woods acquired by the Museum in 1893, and exhibited when the Museum was housed in its former Jackson Park Building, was refinished and installed with new labels in Hall 27. They include

red Baltic pine, northern pine, Norway spruce, European larch, elm, linden, aspen, and hornbeam. The Japanese wood exhibits, condensed last year, were arranged in more compact order in the hall, making room for a more adequate display of Philippine and other woods, the exhibits of which need to be augmented.

DEPARTMENT OF GEOLOGY

EXPEDITIONS AND RESEARCH

An expedition to western Colorado spent nearly three months collecting fossil mammals from the upper Paleocene deposits in the Plateau Valley, De Beque area, Mesa County. Work in this region has been carried on at intervals since 1932. The expedition personnel consisted of Mr. Bryan Patterson, Assistant Curator of Paleontology, and Mr. James H. Quinn, Assistant in Paleontology, who were joined for parts of the season by Messrs. Robert G. Schmidt, Paul G. Clark, Leonard C. Bessom, and Harold E. Pearson. The party was fortunate in finding excellently preserved remains of several individuals of a new pantodont. Pantodonts were primitive hoofed mammals that have left no descendants, have no close living relatives, and were the first mammalian order to evolve large animals. Two partial skeletons of *Barylambda*, the type of which was found by an earlier expedition, were excavated. Remains of medium-sized and small mammals are rarer in the Plateau Valley deposits than they are at other Paleocene localities, but more specimens of this type were secured there during this season than at any time in the past.

In addition to its activities in Paleocene deposits, the expedition collected fossil plant material from the Dakota, Hunter Canyon, and Williams Fork formations of the Cretaceous, and fossil plants and insects from the Eocene Green River formation. Two days were spent visiting old localities in the lower Eocene of the Rifle area. A number of interesting specimens were found, the most noteworthy of which were complete legs of the small four-toed horse *Hyracotherium*.

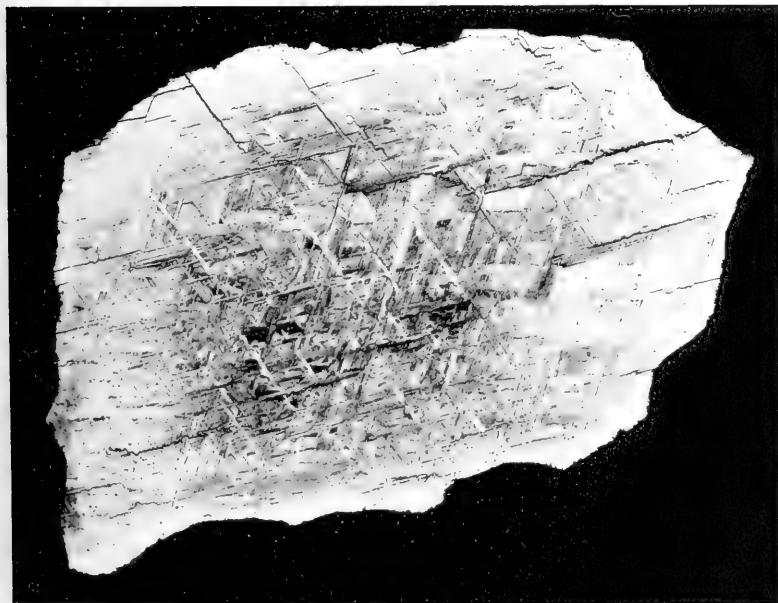
An expedition to South Dakota, under the leadership of Mr. Paul O. McGrew, Assistant in Paleontology, included as collectors Messrs. John Schmidt and Orville L. Gilpin. This party spent two and one-half months collecting fossil mammals in Pliocene stream-bed deposits near Martin, South Dakota. A large fauna was obtained which included specimens of some thirty genera. Most of these are new to the Museum collections, and several represent hitherto un-

known species. Among the most important are nearly complete composite skeletons of an extinct camel, *Procamelus*, and an ancestral horse, *Pliohippus*. In addition to these, there are specimens of an extremely rare genus of saber-tooth cat, a rhinoceros, a small extinct beaver and several other rodents, four kinds of horses, small antelopes, four different genera of dogs, and several genera of other mammals now extinct.

Mr. Sharat K. Roy, Curator of Geology, spent three weeks visiting the University of Iowa, Harvard University, Peabody Museum at Yale University, and the United States National Museum. The purpose of these visits was to examine certain middle and upper Ordovician type specimens, and to discuss with specialists some of the controversial problems that had arisen during the preparation of his Baffin Land monograph.

Mr. Bryant Mather, Assistant Curator of Mineralogy, during an expedition of two weeks, visited forty-seven mineral localities in the northeastern states, and collected eighty-seven mineral species, seven of which were new to the Museum collection. He also made short field trips on Saturdays and Sundays to localities within 300 miles of Chicago, and thus obtained a much greater quantity of useful material than it had been expected this region would yield.

Research and publication in the field of vertebrate paleontology were carried on as opportunity offered. Five papers were published. A joint paper by Mr. Elmer S. Riggs, Curator of Paleontology, and Assistant Curator Bryan Patterson, on *Stratigraphy of the Late Miocene and the Pliocene of the Province of Catamarca, Argentina*, was published in the journal *Physis*, of Buenos Aires. *The Skeleton of Coryphodon*, by Mr. Patterson, was published in the Proceedings of the New England Zoological Club. Four papers on vertebrate paleontology, written by members of the staff, appeared in Field Museum publications. These were: *New Pantodonta and Dinocerata from the Upper Paleocene of Western Colorado*, by Mr. Patterson; *A New Amphicyon from the Deep River Miocene* and *Nanodelphys, an Oligocene Didelphine*, by Mr. Paul O. McGrew, and *A Specimen of Elasmosaurus serpentinus*, by Mr. Riggs. Three other papers on vertebrate paleontology were prepared, but have not yet been published. Substantial progress was made by Assistant Curator Patterson on his memoir on large extinct South American birds, some of which are of gigantic size. An article on meteorites by Chief Curator Henry W. Nichols appeared in the *Scientific Monthly*. Numerous



Mapleton Meteorite



La Porte Meteorite

ETCHED SECTIONS OF METEORITES SHOWING WIDMANSTATTEN FIGURES

These figures appear when a polished surface of certain iron meteorites is exposed to the action of acids

UNIVERSITY OF ILLINOIS
URBANA

articles by members of the Department staff appeared during the year in *Field Museum News*.

Curator Roy devoted the greater part of the year to completing the monograph on the Baffin Land fossils which he collected several years ago as geologist for the Rawson-MacMillan Expedition to Labrador and Baffin Land. The paper is not quite ready for the press, but the fauna, consisting of 114 species, forty-seven of which are new, have been described, and photographs of all macrofossils have been made and captioned. The two main items remaining to be done are photographing the microfossils, chiefly ostracods, and the final revision. This monograph deals with problems of Arctic Ordovician stratigraphy.

The appointment to an assistant curatorship of Mr. Henry Herpers, who is an experienced chemist as well as a geologist, has made possible resumption of work in the chemical laboratory upon the scale its importance deserves. The laboratory has been modernized and provided with a combustion furnace, titrimetric apparatus, vacuum pump and other needed equipment. It is now in shape to meet demands upon it efficiently and economically. The accuracy of the analytical methods used has been tested against standard test material from the United States Bureau of Standards.

Renovation of the laboratory was completed late in the year, after which regular work of analysis and investigation was resumed. An iron meteorite was analyzed for use in meteorite studies for publication, and analyses of three more are under way. Three limestones and one granite were analyzed for Mr. Roy's monograph on Baffin Land. Some of the fossil bones collected on expeditions of 1939 are badly stained, and a successful method of bleaching them was developed and tried out experimentally. One of the bones was analyzed to determine whether certain proposed treatments could be safely used.

As deterioration of the painted backgrounds of many exhibits should be minimized in every possible way, Mr. Herpers made a thorough investigation of the purity and durability of pigments used by the Museum Staff Artist. Numerous partial and some complete qualitative analyses for identifications of specimens were made as usual. Nine antique bronzes were restored by the Fink process for the Department of Anthropology, 560 gallons of alcohol were purified by redistillation for the Department of Zoology, and distilled water was provided wherever it was needed. A new method of etching meteorites, developed in the United States National Mu-

seum, was tried out and has been adopted as standard practice. This method produces sharper figures and imparts brighter luster than did the method formerly in use.

Work in the vertebrate paleontology laboratories has continued along the usual lines of preparation of material for exhibition and study. Skeletons of the Pliocene horse, *Plesippus shoshonensis*, the Pleistocene bison, *Bison antiquus*, and the small water deer, *Leptomeryx cransi*, were mounted. A series of specimens showing the evolution of the camel was designed and prepared for exhibition.

Assistance, by Works Progress Administration workers under supervision of Museum staff members, in the work of preparing specimens has continued steadily. An important part of a collection received from the State Teachers' College, at Chadron, Nebraska, has been prepared. A large part of the collection of Pliocene mammals from the South Dakota expedition was also prepared under the supervision of Mr. McGrew, and the new pantodont collected by the Colorado expedition is in process of preparation. Construction work for mounting two skeletons of South American fossil birds is nearly completed. The large collection of fossil fish-lizards is being repaired, and mounts for these specimens are in course of renovation.

A diorama of the Devil's Tower, a famous volcanic neck in Wyoming, has been in preparation for most of the year by a WPA artist. Near the close of the year this work was temporarily discontinued owing to loss of the services of the artist.

Specimens frequently require sawing or polishing. Apparatus for sawing, devised by the Chief Curator, and for polishing, designed through the co-operative efforts of several members of the staff, was built in the Department workroom and is now in steady operation. As none of the staff had experience in polishing minerals, much experimentation was necessary before the present efficient equipment could be perfected. The equipment consists of a saw, a grindstone for smoothing, and a wooden wheel for polishing. The saw is a modification of the Vanderwilt saw used by the United States Geological Survey and the University of Arizona. Sawing is effected by loose abrasive automatically fed to a reciprocating blade of sheet iron. The Museum saw is enlarged from the earlier Vanderwilt design so that it can saw larger specimens, and the automatic abrasive feed and some other features are modified for smoother operation. As experience in its use was acquired, it became possible to operate it for several hours without attention. The grindstone for smoothing

follows the practice in Oberstein, Germany, where the principal industry for more than 200 years has been agate polishing. Smoothing is finished on a canvas-covered horizontal lap charged with fine abrasive. Final polishing is on a wooden wheel charged with polishing powder. The equipment has proved to be both economical and efficient. Many of the cryptocrystalline quartzes collected in the Northwest in 1938 have been polished. Slices have been cut from a number of meteorites, and excellent specimens for the physical geology exhibit in Clarence Buckingham Hall (Hall 35) have been prepared by sawing specimens that were useless in their original state.

The Museum supplied material from the Pultusk meteorite (which fell in Poland in 1868) to the Massachusetts Institute of Technology for an important research conducted by Professor Robley D. Evans to determine the age of the earth and of the universe. Preliminary results of this research have been published by Field Museum Press. Specimens of silver ores from Mexican mines were sent to the University of Chicago for the use of Professor E. S. Bastin in a research on the paragenesis of certain Mexican ores. Two meteorites were lent to Mr. Stuart Perry, a recognized authority on meteorites, to be used in conjunction with specimens from other institutions in research on certain features of an uncommon group of meteorites.

Specimens sent or brought in for identification have been more numerous than usual. While most of these can be identified at a glance, enough of them have required careful study to consume much time of the staff. The Mapleton meteorite (Plate 7), later acquired, was first recognized in material sent in for identification and ten choice minerals were added to the collection from this source.

ACCESSIONS—GEOLOGY

The Department of Geology recorded during the year ninety-six accessions, which included 3,479 specimens. Although the accessions were slightly more in number than those recorded in 1938, they included only two-thirds as many specimens. Classified by sources, 2,180 specimens came as gifts, 159 were received by exchange, 879 were from expeditions, 231 were collected by members of the staff, and 30 were purchased.

The most important gift of the year was received through the courtesy of the California-Arabian Standard Oil Company from two of their geologists, Messrs. T. F. Harris and Walter Hoag. They presented two meteorites which they collected at the almost inaccessible meteor crater at Wabar, Rub'al Khali, in the Arabian Desert.

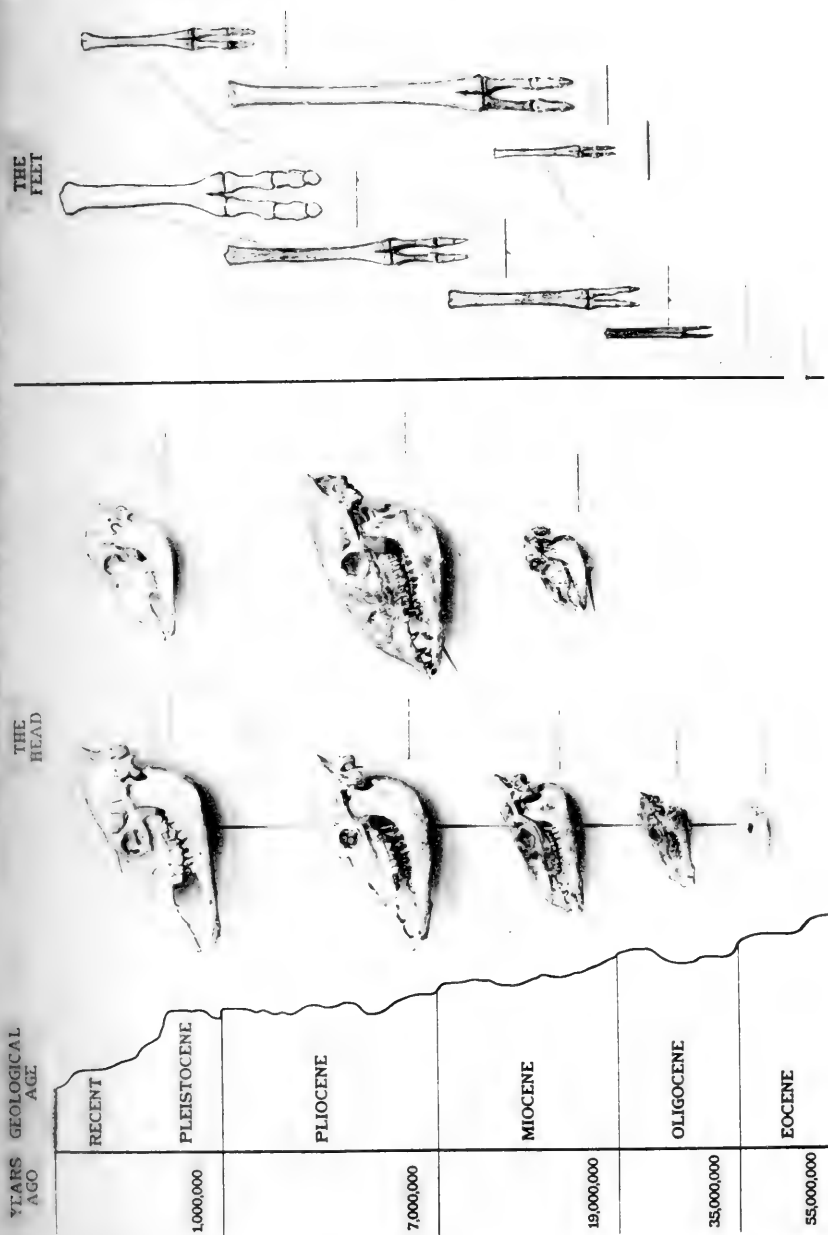
These are of exceptional interest as they are from one of the few meteorites large enough to excavate craters where they fell. The meteorite specimens were accompanied by some of the silica glass made by the melting of parts of the meteorite and surrounding rock by heat developed by the meteorite's impact with the earth. The only other specimens of the Wabar meteorite in any museum are those in the British Museum, which were collected by the explorer H. St. John Philby when he discovered Wabar in 1932.

Another interesting addition to the meteorite collection is a slice of the Tamentit meteorite, which possesses legendary as well as scientific interest. This meteorite fell near an oasis in the Sahara at the close of the fourteenth century, and is the oldest meteorite actually seen to fall which has been preserved. Nine other slices of meteorites not before represented in the collection were purchased, and a slice of the Soper Oklahoma meteorite was obtained by exchange with the Oklahoma Geological Survey. An iron meteorite weighing 108 pounds, recently dug up in Mapleton, Iowa, was purchased from its discoverer. Another specimen purchased from its discoverer is a newly found twenty-pound individual of the Joe Wright Mountain Arkansas meteorite. Thirteen of the fourteen meteorites added this year are from falls new to the collection. Two tektites from a newly found Texas locality were obtained by exchange, and fifteen others, to illustrate varieties of moldavite, were purchased.

Another important gift was a collection of nearly 1,500 minerals and fossils, presented by Dr. Henry Field, of Chicago. This collection was made before 1820 by the Misses Otteline and Diana Salisbury, of Baggrave Hall, Leicestershire, England. It includes many specimens from now "classical" localities in England and Europe some from places whence such specimens can no longer be obtained.

Among other gifts to the mineral collection worthy of special mention were three rare minerals new to the collection. These were a saponite, from Mr. Ben Hur Wilson, of Joliet, Illinois, a serendibite, from Mr. Frank C. Hooper, of North Creek, New York, and an example of the exceedingly rare callanite which was included in a collection from Dr. M. J. Groesbeck, of Porterville, California. Dr. Groesbeck also presented a thinolite of unusual perfection. Mr. W. A. Blomstran, of Lyon Mountain, New York, presented a specimen of the rare byssolite, hitherto represented by only a single example. A chatoyant quartz from Mr. Ludwig A. Koelnau, of

THE DEVELOPMENT OF THE CAMEL.



EVOLUTION OF THE CAMEL.

A series of fossil skulls and feet showing the development of the llama and the Asiatic camel from a North American animal the size of a fawn

UNITED STATES
LIBRARY

Minneapolis, and a sardonyx from Mrs. M. J. Hubeny, of Chicago, are semi-precious stones of better than usual quality. The largest garnet in the collection is the gift of Miss Katherine S. Kniskern, of Baltimore, Maryland. Mr. Oscar U. Zerk, of Kenosha, Wisconsin, presented seven polished moss and scenery agates as an addition to the moss agate collection in the Gem Room (H. N. Higinbotham Hall). Mr. Frank Von Drasek, of Cicero, Illinois, added twenty-nine minerals to his gifts of former years.

A collection of 187 minerals, from Mr. George W. DeMuth, of Chicago, contained rare lithium minerals. Miss Bertha Gordon, of Porterville, California, presented a collection of fifteen minerals from Death Valley, accompanied by six photographs which illustrate exceptionally well the geological phenomena encountered in deserts. Valuable minerals were received from twenty-seven other donors.

Two rare minerals new to the collection—oxyhornblende and chiolite—were obtained by exchange. A chrysoberyl crystal, the largest in this country if not in the world, was also secured by exchange. Another exchange provided a group of selenite crystals of extraordinary slenderness. Some of these are nine inches long, with a ratio of length to thickness of five hundred to one. Local collecting by the Assistant Curator of Mineralogy has yielded more than 200 mineral specimens, many of excellent quality.

The most valuable additions to the vertebrate fossil collections came from the expeditions to South Dakota and Colorado, already mentioned. A collection of 120 specimens of vertebrate fossils was obtained through exchange with the State Teachers' College of Chadron, Nebraska. Other specimens acquired by exchange were the cast of a skull of *Aleurodon* from the American Museum of Natural History, New York, and a skull of *Buettneria* from the Museum of Comparative Zoology, Cambridge, Massachusetts.

Gifts of fossils were fewer than usual. Bones of the fossil moose, *Cervalces*, presented by Mr. Charles N. Ackerman, of Antioch, Illinois, are of local interest. This beast, which once lived in the country around Chicago, had horns more like those of an elk than a moose. Another gift of local interest consisted of fossil vertebrates from Western Springs, Illinois, presented by the Park Board of that town. It contained various bones of extinct species of deer and elephant, and a complete fossil fish, which were uncovered during excavations for the improvement of the village park. Other vertebrate fossils were donated by Mr. R. E. Frison, of Tensleep, Wyoming, and Mr. John Winterbotham, of Chicago.

Except for the Salisbury collection already mentioned, there were few additions to the collection of invertebrate fossils. Members of the staff collected seventy-two fossils, one fossil leaf was purchased, and twenty-eight miscellaneous fossils were presented by six donors.

The principal additions to the physical geology collections were specimens of seventeen volcanic products from the volcanoes of Guatemala and El Salvador, presented by Mr. and Mrs. George Artamonoff, of Chicago; and a number of tufas from the shores of Mono Lake in California, the gift of Dr. M. J. Groesbeck, of Porterville, California. The Field Museum Magellanic Expedition of 1939 brought to the Department gifts of nine silver ores from Mr. E. G. Howe, of Puno, Peru, and the Compania Minera de Cailloma, of Arequipa, Peru.

CATALOGUING, INVENTORYING, AND LABELING—GEOLOGY

The Department of Geology has made a change in its manner of reporting catalogue entries. Two catalogue books temporarily in use during the first months of the Museum's existence have been dropped from the records, as they are no longer of use, and their contents are incorporated in the permanent records. This reduces the number of catalogue books in the Department from twenty-eight to twenty-six.

Hitherto each specimen catalogued has been reported as if it were a separate entry in the books, although often several duplicates are included in the same number. The 201,559 specimens reported as entries in the Report for 1938 were included in 68,826 separate entries. During 1939, 3,044 specimens were catalogued by 1,608 numbered entries, making a total of 70,434 numbered entries, cataloguing 203,167 specimens. All specimens have been catalogued except such of the vertebrate fossils collected by this year's expeditions as cannot be identified until they are removed from the matrix.

The classified card catalogues, begun three years ago, are proving of great value. The classified catalogue of minerals has been kept up to date by the addition of 924 cards. The catalogue of new mineral names in loose-leaf book form has been kept up to date by the addition of 100 entries. A new catalogue of all mineral names, begun this year by the Assistant Curator of Mineralogy, contains all mineral names in the four most important texts. Some names from other sources must be added, but even in its present form the catalogue is valuable as a saver of time. The classified catalogue of meteorites

has been kept up to date by the addition of 154 cards. This catalogue contains, on white cards, data on all meteorites in the collection, and, on red cards, data for all recorded meteorites of which the Museum has no specimens.

The classified catalogue of invertebrate fossils is still far from complete, although 2,150 cards were added during the year. Many of these await checking by a member of the staff before they are filed. The classified catalogue of the rock collection, which now contains 2,858 entries, was kept up to date by the addition of 92 cards.

The classified catalogues of vertebrate fossils have been kept up to date except for recent additions which require more preparation and study before they can be properly catalogued. The vertebrate paleontology bibliographical files are increased by 678 cards. Several hundred valuable maps and atlases have been stored for years in bundles in the Department Library. These have been unpacked, and are being classified and catalogued for filing in a new cabinet which has been provided for the purpose. Several reference files were prepared, in card form, on mineralogical subjects such as fluorescence, to facilitate revising collections and for use in research.

Copy for 800 labels was prepared for the printer, and all installed specimens have been properly labeled. A number of large descriptive labels were rewritten to conform with the advances in geological knowledge of recent years. Storage labels were written for 2,577 specimens in the study collections, and faded numbers on specimens were repainted wherever found. The classified and cross-index catalogue of photographs has been kept up to date.

INSTALLATIONS AND REARRANGEMENTS—GEOLOGY

During 1939 plans were prepared for the improvement of the appearance and educational value of the collections by a thorough revision and reinstallation.

Since the present installation of the geological collections was planned in 1919, important improvements in methods of display have been developed, and there has been a great increase in the size of the collections. Expansion of geological knowledge, too, has kept pace with the recent progress of all the sciences. Thorough revision and reinstallation of the collections will incorporate the additions to better advantage, and will materially enhance the appearance of the halls. A beginning has been made during the past few years by reinstallation of the meteorite collection in Hall 34 and the rock collection in Clarence Buckingham Hall (Hall 35). Reinstallation

of the collection pertaining to physical geology, involving complete reclassification and addition of much new material, had been under way during the previous two years, and was continued in 1939. Three cases were reinstalled, and two and one-half cases remain to be installed before this hall is completed. Installation of the remaining cases has been deferred because it is expected that better material than is now at hand will be available soon. General plans for reinstallation of the paleontological collections in Ernest R. Graham Hall (Hall 38), and the economic geology material in Hall 36 and Frederick J. V. Skiff Hall (Hall 37), have been prepared, and much of the preliminary work necessary before actual installation has been done. As there will be much transferring of specimens among these three halls, reinstallation of all three must be undertaken simultaneously.

The Curator of Paleontology prepared a comprehensive plan for the conversion of Graham Hall from a Hall of Paleontology to a Hall of Vertebrate Paleontology by moving the invertebrate fossil collections into Skiff Hall. Work on this reinstallation has been begun: two cases of fossil fish have been reinstalled; skeletons of the Pliocene horse, *Plesippus shoshonensis*, of the Pleistocene bison, *Bison antiquus*, and of the little water deer, *Leptomeryx evansi*, have been mounted and placed on exhibition; and a series showing the development of the camel family in North America (Plate 8) was prepared and installed by Mr. McGrew.

The east half of Skiff Hall now contains the ore collection, and an overflow of non-metallic industrial minerals from the main collection in Hall 36 occupies the west half. The ore collection, after much revision, will be reinstalled in the space it now occupies. The west half of the hall will be occupied by the invertebrate paleontology collection. The non-metallic industrial minerals displaced will be in part moved to Hall 36, in part transferred to the study collection, and in part put in storage until other arrangements for their display can be made. Work of dismantling this exhibit has begun. Most of the cases in this hall came from the Paris Exposition of 1900. They are of an obsolete type not well adapted to museum use. Some of these cases can be modified for use in the future, and others will be replaced.

Hall 36 will remain a hall of non-metallic, industrial minerals. In order to accommodate the collections transferred from Hall 37, it will be necessary to reduce the space now occupied by the petroleum, clay, and soil collections. This can be done with advantage, as they now contain numerous specimens of purely scientific, rather

than general, interest. Such specimens are almost identical in appearance, and give the exhibits a monotonous effect that detracts from their appeal. They will be transferred to the study collection where they will be of more use.

Seventeen meteorites not hitherto represented were added to the meteorite collection in Hall 34. The tektite collection, now placed with the meteorites, was enlarged by sixteen specimens. Thirty-nine minerals were added to the mineral collection in the same hall. Two of these, of unusual interest, are remarkably slender selenite crystals from Arkansas, and a chrysoberyl crystal of record size from Colorado. The additions include ten minerals of species not hitherto represented. Seven of these were obtained by the Assistant Curator of Mineralogy on a brief expedition to the eastern states, and three were found in material submitted by the public for identification. Five of these additions are specimens of minerals numbered in the Dana text of 1892. The collection now contains 603 of these numbered species, or 72 per cent of the entire 838. The addition of six this year compares favorably with the average rate of increase of Dana listed species, which has been two and one-half per year for the years from 1894 to 1938.

Over half of the minerals now in the fluorite display are additions for which space was found partly by rearrangement and partly by replacing inferior material. The superior specimens were selected by testing numerous specimens from the regular mineral collection.

The mineral specimens in Hall 34 are now arranged according to the latest current information on the nature and relationships of minerals. Use of the X-ray in mineral study has developed new and radically changed concepts of mineral structure and classification. A codification of the new concepts by a group of eminent mineralogists has been nearly completed. As soon as their results become available a complete reinstallation of the mineral collection will be necessary. On the basis of preliminary reports, the Assistant Curator of Mineralogy has during the past year done much work devising tentative plans for modernization of the exhibit. These plans, which cannot become definite until the new "System of Mineralogy" is available, involve a revision of the scientific classification, a complete relabeling, and the use of supplementary exhibits to add interest and value to the display. Further, the manner of installation will be modified by the use of the new techniques of museum display which are being applied in other halls.

The mineral study collection, consisting of all minerals not on display, is stored in drawers under the exhibits in Hall 34, with an overflow in Room 113-A on the third floor. Their arrangement is orderly, so that any specimen can be found readily. Additions to the collection have so crowded the drawers that there is an increasing danger of damage to delicate specimens, and ready reference by use of the recently completed card catalogue is becoming more difficult. To facilitate use of the classified catalogue, a diagram of all available drawers was prepared, the drawers were numbered, and the drawer number for each specimen entered on the catalogue cards. The minerals are being rearranged in an order corresponding to the arrangement of the cards in the catalogue. In order to reduce crowding of the storage drawers to convenient and safe limits it has been necessary to store some groups temporarily in Room 113-A. The rearrangement is about half finished. When it is complete it will be possible to locate readily any specimen, and to determine quickly and correctly the status of the collection in regard to any mineral or group of minerals. It also makes it easier to recognize weak spots in the collection which should be strengthened. This rearrangement of the study collection is an essential part of the work preliminary to the reinstallation of the exhibited minerals, and it has enabled Mr. Mather, the new Assistant Curator of Mineralogy, to become thoroughly familiar with the collection.

The study collections of rocks and material for economic geology have been little changed during the year. The study and reserve collections in physical geology have been checked, and material of possible use for the new installation in Clarence Buckingham Hall (Hall 35) has been segregated for further selection of exhibition specimens. Reorganization and storage of the reserve collection of invertebrate fossils in Room 111 was completed by the end of August. The collection is now arranged according to geologic periods and major zoological classes. Detailed stratigraphic rearrangements remain to be made but this cannot be undertaken until after a final check of the identifications of the specimens has been completed.

An important and useful work done during the year was the selection and separation of a few of each available species of Paleozoic index fossils from the study collection. This was done to meet a long-standing need of comparative specimens which could be easily reached for the ready identification of faunas and the correlation of horizons. Many serious gaps remain in this collection of index fossils, but these will be filled as additions to the collections permit

DEPARTMENT OF ZOOLOGY

EXPEDITIONS AND RESEARCH

Of the three zoological expeditions of the year, the most important is the Field Museum Magellanic Expedition, made possible by the generosity of President Stanley Field. Not yet completed, it will continue work in 1940. For the preliminary work of this expedition, Mr. Colin C. Sanborn, Curator of Mammals, Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, and Mr. John M. Schmidt sailed from New York early in July, and arrived at Callao sixteen days later.

After making necessary arrangements in Lima, the expedition proceeded southward by truck over a new automobile road to Arequipa. In order to obtain some of the rare or little known small mammals, a rare frog, and the toads of the icy highland lakes and streams, as well as the lizards which range almost to the snow line at 16,000 feet, collections were made at various high elevations in southern Peru. Many desirable specimens were collected at Yura (8,000 feet), Juliaca (12,500 feet), Sumbay (13,500 feet), Salinas (14,000 feet), and San Ignacio de Cailloma (14,500 feet). While Curator Sanborn worked in the vicinity of Puno on Lake Titicaca, Curator Schmidt and his son went to Cuzco and from there to a somewhat lower altitude. At the Hacienda Urco in the Urubamba Valley further desirable specimens were obtained.

Using Lima as a base, Curator Schmidt also made short trips to Lake Junin in the central highlands, the Chincha Islands, and via truck on the Pan-American highway to Trujillo and Chiclayo. He returned to the United States at the end of November, but the other members of the party remained in the field.

Curator Sanborn made collections in two of the lower valleys near Arequipa, and then went to Mollendo to join Dr. Wilfred H. Osgood, Chief Curator of Zoology, who assumed leadership of the expedition in October. In the latter part of that month, accompanied by Mr. John M. Schmidt, they sailed for southern Chile. Satisfactory results were obtained in the magnificent Nahuelvute Araucarien forest west of Angol, and in the region around Lake Todos Santos in Llanquihue. On a special trip made by Mr. Sanborn to Laguna Maule, a rare parrot and several desirable small mammals were secured. Early in December the expedition sailed from Puerto Montt for Punta Arenas on the Straits of Magellan.

Among the many persons who rendered assistance to the expedition were Dr. Marshall Hertig, of the Instituto de Hygiene y

Salud, in Lima; Dr. Carlos Nicholson, Professor of Biogeography at the University of Arequipa; Mr. William Vogt, Biological Investigator for the Compania Administradora del Guano, stationed on the Chincha Islands; and Señor Adolfo Schnapka, Manager of the Compania Minera de Cailloma, and other members of the personnel of that company who were hosts to the expedition at its most fruitful high altitude stations. To all of these the Museum expresses appreciation.

An expedition specifically for collecting birds was conducted during the latter part of the year. In August Mr. Melvin Traylor, Jr., in company with Mr. Wyllys Andrews, both of Chicago, proceeded to Yucatan Peninsula, Mexico, to continue the field work which they began in 1937. Headquarters were first established at Chichen Itza, Yucatan, where a representative collection of vertebrates, including approximately 300 birds, was made. Early in December they made a trip into the state of Campeche to obtain supplementary collections from that zoologically interesting region, but the results are not yet known. This expedition, which is financed in part by Messrs. Traylor and Andrews, and in part by the Museum, is expected to return to Chicago in February, 1940.

An expedition to secure material needed for an exhibit of the Florida sea turtle—a group which has been under consideration for several years—left early in May. This work was conducted by Mr. Leon L. Walters, Staff Taxidermist, and Dr. Fritz Haas, Curator of Lower Invertebrates. Dr. Haas engaged in general collecting and in studies for his Division. Mr. Walters found the sandy beach of Sanibel Island a favorable area for observing the egg-laying of the loggerhead turtle, and obtained a female specimen with a shell length of thirty-nine inches, together with eggs, and complete notes on the process of egg-laying.

To the Museum's Zoological Series, twelve publications were added during the year, and twelve signed articles were contributed by the Department staff to *Field Museum News*.

The most notable publication in the Zoological Series was the Author Index, forming Parts I and II, of *A Bibliography of Birds* (938 pages), by Dr. Reuben Myron Strong, of Loyola Medical School, Chicago. About 30,000 articles and books on birds are listed in Parts I and II. Part III, to be published shortly, will contain the Subject Index with the references to each title in Parts I and II grouped alphabetically, geographically, and systematically. The other publications in the Zoological Series were: *New Central Ameri-*

can Frogs of the Genus Hypopachus, A New Lizard from Mexico, A New Coral Snake from British Guiana, and Reptiles and Amphibians from Southwestern Asia, all by Curator Karl P. Schmidt; *A New Australian Lizard with a Note on Hemiergis, Notes on Mexican Reptiles and Amphibians*, and *The Mexican and Central American Lizards of the Genus Sceloporus* (397 pages), all by Dr. Hobart M. Smith; *Eight New Bats of the Genus Rhinolophus*, by Curator Colin Campbell Sanborn; *Malacological Notes*, by Curator Fritz Haas; *Carcinological Notes*, by Associate Claire Nemec, and *Three New Birds of the Genus Stachyris*, by Mr. H. G. Deignan.

For two months in the early part of the year, Curator Sanborn proceeded with a research on bats in European museums, begun in 1938 under his fellowship from the John Simon Guggenheim Memorial Foundation. After studying the large collections of bats in the British Museum (Natural History), he examined those in the Muséum d'Histoire Naturelle in Paris, the Zoologisches Museum in Amsterdam, and the Rijksmuseum van Natuurlijke Historie in Leiden. A study of other large collections of bats in Europe did not then seem advisable.

To complete the *Catalogue of Birds of the Americas*, Associate Curator Charles E. Hellmayr proceeded with his studies of New World birds, working in Geneva, Switzerland, and in London. In co-operation with Mr. Boardman Conover, Research Associate, the manuscript was practically completed for the penultimate part of the *Catalogue*, which will contain the game birds of the Americas. The final part of this notable work, dealing with the birds of prey and some of the lower orders, is being prepared by Dr. Hellmayr.

Besides making studies essential for the preparation of anatomical and biological bird exhibits which are under way, Mr. Rudyerd Boulton, Curator of Birds, continued his research on African birds in this Museum and in the American Museum of Natural History in New York. At the end of the year he made necessary arrangements for the Leon Mandel Caribbean Expedition, sailing January 1, 1940. A full account of this expedition will appear in the 1940 Annual Report.

Shortly after his return in January from the Sewell Avery Zoological Expedition to British Guiana, details of which were given in the 1938 Report, Mr. Emmet R. Blake, Assistant Curator of Birds, began work on a report concerning the British Guiana birds that he obtained on the 1937 and 1938 expeditions to that country. Mrs. Ellen T. Smith, Associate in the Division of Birds, and Mr. Sidney

Camras conducted studies on New World and Ethiopian birds respectively.

The research activities of Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, included the completion of four publications that appeared in the Zoological Series, further studies on Central and South American amphibians and reptiles, and his many observations recorded in Peru while a member of the Magellanic Expedition. He also continued to serve as Herpetological Editor of *Copeia*, and wrote numerous reviews in that journal. Dr. Hobart M. Smith, who worked in the Division during part of 1938, contributed three papers to the Museum's Zoological Series of publications.

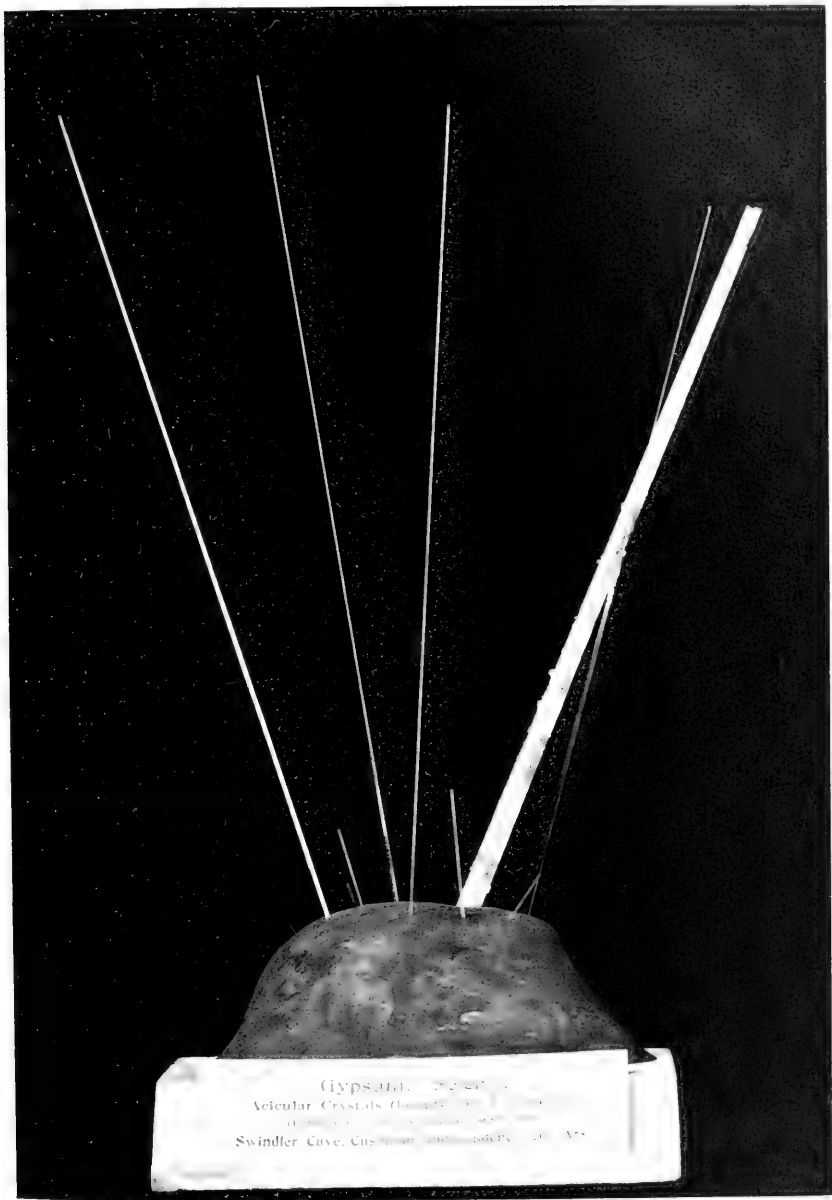
Dissections and study of the carcass of the giant panda, Su-lin, and of the bears and raccoons to which it is supposedly related, were continued by Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology. The services of a capable artist and technical assistant assigned to the Division by the Works Progress Administration made it possible to obtain excellent drawings illustrating the anatomy of the giant panda. Mr. Davis also conducted research on an adult male babirussa received from the Brookfield Zoo. This animal is one of the most curiously specialized of all wild pigs, and the anatomy of this species had never been adequately investigated. Study of this specimen revealed a number of interesting features, and a report embodying the results is practically completed.

In the Division of Lower Invertebrates, Dr. Fritz Haas prepared a technical publication for the Museum's Zoological Series, and another was printed in the malacological journal, *Nautilus*. He also wrote a report, not yet published, on the ecology of common marine invertebrates of Sanibel Island, based in part on the results of the Museum's Florida expedition. Miss Claire Nemec, while an Associate in the Division, engaged in research on crustaceans, the results of which were published by the Museum.

For a period of about two and a half months, Staff Taxidermist C. J. Albrecht was engaged, with Mr. Emil Liers, of Homer, Minnesota, in making photographic studies of the life of the otter in various parts of Minnesota, and at Silver Springs, Florida. Successful results in the latter place were due largely to the courtesy of the management of the resort in permitting the use of their pools and "photosubmarines."

ACCESSIONS—ZOOLOGY

In the Department of Zoology the year was notable for the exceptionally large number of specimens received, the total being 64,379



GYPSUM CRYSTALS

Showing exceptionally long, needle-like development

From Swindler Cave, Cushman, Independence County, Arkansas

Approximately one-half actual size

(Hall 34)

1909
1909
1909

This is more than twice the number accessioned in 1938, which was previously considered a record year for additions to the collections. One acquisition, a gift of 35,076 birds, made up more than half of the total number of specimens acquired. The 381 accessions comprised 1,396 mammals, 36,495 birds, 3,021 amphibians and reptiles, 11,664 fishes, 1,179 insects, and 10,624 lower invertebrates. The accessions received as gifts consisted of 51,952 specimens; by exchange, 2,007; from Museum expeditions, 9,010; and by purchase, 1,410.

Of the 1,396 mammals added to the collection, 357 came as gifts, only a limited number of which are here enumerated, the others being recorded in the list of zoological accessions (p. 128). Among the gifts were thirty-two specimens from the Chicago Zoological Society. From the Lincoln Park Zoo an adult lioness was received. Dr. Harold H. Nelson, of the Oriental Institute of the University of Chicago, presented sixty-three bats from Egypt, and Dr. Henry Field, of Chicago, gave twenty-four specimens of the same class of mammals that were taken in Iraq. For the acquisition of other desirable bats, collected in the countries of the respective donors, appreciation is due to Messrs. Michael Blackmore and J. L. Chaworth-Musters, both of London, England; Mr. H. St. John Philby, of Jidda, Arabia; Dr. L. C. Buckley, of Trang, Siam; and Brother Niceforo Maria, of Bogotá, Colombia. Among the gifts of small mammals were twenty-nine from South Dakota, given by Mr. John M. Schmidt, of Homewood, Illinois; twenty-one from Iowa, presented by Mr. Harold Hanson, of Chicago; forty-four from Illinois and Tennessee, received from Mr. W. J. Beecher, of Chicago; and thirty-one from Mississippi and Florida, presented by Dr. Wilfred H. Osgood, of Chicago.

Nearly nine-tenths of the unusually large number of birds accessioned represented a single gift from an anonymous donor—the largest gift ever received by the Department of Zoology. This most noteworthy acquisition comprises the Louis B. Bishop Collection of North American birds, totaling more than 50,000 specimens, of which 35,076 are now in the Museum. The Bishop Collection (which will always be known by that name) supplements the approximately 30,000 specimens of North American birds previously in the Museum, and it enormously increases the research facilities of this institution. Practically all known forms of American birds found north of Mexico are contained in the new collection, most of them being represented by large series of beautifully prepared specimens. Among the birds

so far received, 32,326 are representatives of North American species and subspecies, 1,222 are miscellaneous tropical American forms, and 1,419 are from the Old World. Particularly noteworthy in this valuable collection are eleven type specimens, sixty-three albinos and mutants, and thirty-three examples of extinct birds.

Other gifts included 146 birds in the flesh, donated by the Chicago Zoological Society; sixty-nine study skins from Mr. Habib Rasool, of Buxton, British Guiana; twenty-two Colombian specimens from Brother Niceforo Maria, of Bogotá, Colombia; and fourteen miscellaneous Asiatic birds presented by Colonel Richard Meinertzhagen, of London, England.

From Mrs. Charles A. Corwin, of Chicago, were received four oil paintings of Laysan Island birds, the work of her late husband, who was Staff Artist at Field Museum. Mr. Michael Lerner, of New York, generously secured and presented a series of photographic studies, including both kodachrome motion pictures and kodachrome slides, of Mount Egmont and vicinity, New Zealand. These studies will be most useful in the preparation of a kiwi habitat group in Hall 20.

The acquisitions of amphibians and reptiles included 734 specimens that were received from various donors. In addition to other material, Mr. H. St. John Philby, of Jidda, Arabia, gave forty-nine snakes and lizards from Arabia. A collection of sixty-four Chilean specimens that came from Dr. Dillman S. Bullock, of Angol, Chile, will prove useful for study in connection with the amphibians and reptiles that may be taken by the Museum's Magellanic Expedition. A gift of eighty-seven tadpoles from Mexico was received from Dr. C. L. Turner, of Evanston, Illinois. Mrs. Robb White, of Thomasville, Georgia, continued to show her interest in the Museum's work by presenting fourteen salamanders and snakes. A collection of fifty-six specimens from Nebraska and South Dakota was given by Mr. John M. Schmidt, of Homewood, Illinois. A donation of 224 salamanders, snakes, and lizards from southern Missouri was made by Dr. Julian A. Steyermark, Mr. Loren P. Woods, and Mr. E. G. J. Falck, of Chicago. The General Biological Supply House, Chicago Zoological Society, Lincoln Park Zoo, and John G. Shedd Aquarium again contributed a number of desirable amphibians and reptiles.

The acquisitions in the Division of Fishes were noteworthy for their scientific value and unusually large number. Nearly nine-tenths, or 10,809, of the specimens received were gifts, and most of

these came from the collectors. A much needed desideratum for the exhibit of fishes was filled by the gift of a very large tarpon received from Mr. Henry Barthman, of Useppa Island, Florida. During his study of stream fishes in the United States, Mr. Loren P. Woods, of Evanston, Illinois, collected 9,361 specimens which he gave to the Museum. From Dr. Henry Field, of Chicago, eighty-six shore fishes from York Harbor, Maine, were received. They will prove useful for comparison with specimens collected by the Rawson-MacMillan Subarctic Expeditions (1926 and 1927-28). Further contributions from the John G. Shedd Aquarium, Chicago, consisted of seventy-six specimens, a small series of which were especially collected in Hawaiian waters for the Museum.

The sixty accessions of insects comprised a comparatively limited number of specimens, of which 589, or about half, represented small donations. Dr. Lewis H. Weld, of East Falls Church, Virginia, presented thirty-three gall wasps and one parasite from Turkey and the western United States. This gift was of especial value in that it included twelve paratypes. Equally welcome, for the same reason, were twenty-one histerid beetles, including eight paratypes, received from Mr. Rupert L. Wenzel, of Chicago. Mr. H. E. Woodcock, of Chicago, gave sixty-two butterflies from Europe and New Mexico; and Dr. Henry Field, of Chicago, supplementing previous gifts, presented 151 specimens of various insects from Iraq.

Gifts of lower invertebrates consisted of 4,077 specimens, amounting to nearly half of the total number added to the collection. Many were of outstanding value. Among the more desirable acquisitions were 585 specimens from southwestern Asia and Maine, received from Dr. Henry Field, of Chicago; 683 lower invertebrates from Central America, contributed by Mrs. George L. Artamonoff, of Chicago; 1,381 specimens, mostly mollusks, from the Puget Sound region, given by Mr. Loren P. Woods, of Evanston, Illinois; and 215 specimens, including a number of crustaceans, from Florida, collected and presented by Mr. Alfred C. Weed, of Chicago.

Among the many vertebrate animals accessioned are 232 specimens that filled needs in the study collection of the Division of Anatomy and Osteology. Of these, 217 were skeletons, and the remaining fifteen were preserved complete for study of the soft anatomy, or were injected with colored masses for research on circulatory systems. Nearly all of these specimens were received in the flesh, and most of them were contributions from the Chicago Zoological Society.

A noteworthy quantity of material was obtained from Museum expeditions. The final results of the year, it is believed, will prove even more satisfactory when the two expeditions in southern Chile and in Yucatan have finished their work. These expeditions are continuing operations into 1940, and much of their 1939 collections will not be received until their return. Assistant Curator Emmet R. Blake, leader of the Sewell Avery Zoological Expedition to British Guiana, returned in January with fifty-one mammals, 500 birds, 160 amphibians and reptiles, and 752 fishes. An account of this expedition, and of its loss of many specimens due to a boat accident, was given in the Report for 1938. On an expedition to Florida for both exhibition and study material, Staff Taxidermist Leon L. Walters and Curator Fritz Haas obtained fifteen turtles, four snakes and lizards, 753 fishes, and approximately 6,000 lower invertebrates. During the preliminary part of the Magellanic Expedition, Curator Colin C. Sanborn and Curator Karl P. Schmidt, assisted by Mr. John Schmidt, collected in Peru 484 mammals, 135 birds, about 1,200 amphibians and reptiles, several hundred fishes and insects, and 306 isopods, crayfish and mollusks. Two members of the staff of the Department of Geology—Assistant Curator Bryan Patterson and Assistant James H. Quinn—gathered incidentally on the Field Museum Paleontological Expedition to Colorado the following specimens for the Department of Zoology: ten mammals, twenty-eight bird skeletons, 105 snakes and lizards, several hundred insects, and 241 lower invertebrates.

The acquisitions obtained by exchanges during the year were noteworthy, and may be classified as follows: mammals, 276; birds, 29; amphibians and reptiles, 1,581; fishes, 101; and insects, 20. Material obtained in this manner is of special value because the specimens requested in return are nearly always wanted for a specific purpose. For Museum publications, thirty-eight small mammals from Chile were acquired from Dr. D. S. Bullock, of Angol, Chile. By an exchange with Mr. G. C. Rinker, of Hamilton, Kansas, sixty-one mammals were received. From the British Museum (Natural History), London, England, 123 specimens were obtained; and by an exchange with the Museum of Comparative Zoology, Cambridge, Massachusetts, fifty-one mammals were procured. The twenty-nine birds acquired by eight exchanges included three genera, nine species, and one race not previously represented in Field Museum. A large collection of Mexican lizards of the genus *Sceloporus*, numbering 1,563 specimens and including the types of nine forms, was received under an exchange agreement with Dr. E. H. Taylor, of the University of

Kansas. Amphibians and reptiles were obtained also by exchange from the Bombay Natural History Society, the Museum of Zoology of the University of Michigan, and the Texas Co-operative Wild Life Research Unit. By a special exchange with Ohio State University, 101 specimens of fishes were procured for the study collection.

To the Museum's large series of birds of prey, there were added 253 specimens from twelve different countries. This addition was made through the fund established by the late Leslie Wheeler and continued in his memory. Mr. Wheeler was a Trustee of the Museum and Research Associate in the Division of Birds. The Emily Crane Chadbourne Zoological Fund made possible the acquisition of 159 miscellaneous birds.

Purchases were neither large nor numerous, barely exceeding a thousand specimens. Among the mammals added to the collection in this manner were 100 specimens from Tanganyika Territory; a ring-tailed cat, four skunks, three deer and sixty-five bats from Mexico; and six African forest hogs, which are being mounted for a group exhibit. Other purchases included 205 amphibians from northern California; 101 specimens from Ecuador; forty-one snakes, lizards, and turtles from Arkansas; and 419 butterflies and moths from Ecuador.

CATALOGUING, INVENTORYING, AND LABELING—ZOOLOGY

In the catalogues of the Department, 18,477 entries were made during the year. By subject they are divisible as follows: mammals, 981; birds, 12,329; amphibians and reptiles, 2,681; fishes, 459; and lower invertebrates, 2,027. The entries for vertebrates include 261 anatomical and osteological specimens.

The rearrangement of the mammal collection, involving the reattaching of the original labels to skins received prior to 1908, was steadily continued. For the rearrangement program and for the acquisitions of the year, 1,675 skin and 1,500 skull labels were typed, 4,425 skin labels were attached to specimens, and 3,200 labels for skulls were placed in vials and boxes. The specimen cards typed, checked with the catalogue, and filed, aggregated 14,055. To prevent the intermingling of the skins with their skulls in vials and boxes, 3,146 wooden strips were placed as separators in the trays containing comparatively small specimens. Other work on the collections included the arrangement of thousands of specimens in a taxonomic and numerical order.

The activities of the Division of Birds were mainly directed to the care of new material and the reorganization of the research

collection. Among the 12,329 catalogue entries were 11,632 skins, 501 sets of eggs, 193 skeletons and three birds in alcohol. In continuing the rearrangement of the collection, much time was devoted to checking identifications, relabeling, and indexing the specimens both systematically and geographically. In the species files, 11,441 specimens were recorded in this manner.

In carrying forward necessary improvement of the Museum's large collection of birds' eggs, the services of four persons, on the average, were made available. The sets of eggs that were sorted and boxed numbered 4,550, and 3,020 sets were placed in trays with cotton and arranged in their systematic order. The specimen cards, original data slips, and the labels of 2,210 sets were carefully checked and permanently filed or attached. Approximately 3,000 specimen cards and labels were typed for this work. To permit a more uniform expansion of the collection, all of the egg drawers were shifted.

Old birdskins, or skins received from inexperienced collectors, sometimes need to be renovated, repaired, or degreased. This important attention was given to 1,624 specimens by two or three taxidermists assigned to the Museum by the Works Progress Administration.

To all of the 3,021 amphibians and reptiles received in 1939, individual tag numbers were attached, and the specimens were recorded under 2,681 catalogue entries. As in the past, duplicate specimens were given the same catalogue and tag number. For the permanent index to the collection, 1,106 cards were compiled and typed, and 800 bibliographic cards were added to the files. In addition to the usual work of sorting, injecting, identifying, and distributing new material, attention was also given to the replacement of alcohol in the specimen containers.

Although the services of an assistant were available to the Curator of Fishes for only seven months of the year, there was no curtailment in the care of the collection or in its continued improvement. The new labels written, number tags attached to specimens, and the index cards typed and filed reached a total of 8,530, and the rearrangement of the containers on the shelves required the examination and handling of 15,658 specimens. A large amount of weak or discolored alcohol was removed from many jars and tanks and replaced.

The cleaning of all old accumulations of skeletons in the Division of Anatomy and Osteology made it possible to arrange the entire collection so that the material is accessible for ready reference. A

notable beginning has been made on a well-prepared series of animals for study of the soft anatomy. This small collection has already proved its value in connection with research projects. A total of 655 skulls were cleaned for the Division of Mammals, and 247 skeletons were prepared, numbered, and labeled.

The insects received were, for the most part, pinned, labeled, and distributed according to their respective families. For eight months of the year a WPA worker compiled, typed, and filed 5,590 bibliographic cards on North American butterflies. As a volunteer worker for nearly two months, Dr. Eugene Murray-Aaron added 5,395 more index cards to the bibliographic file. In the latter part of the year a WPA worker respread 803 butterflies and pin-labeled 264 insects of various orders.

In the Division of Lower Invertebrates attention was given mainly to identifying, numbering, and labeling new and old unclassified material, especially mollusks and crustaceans. There were 2,027 entries made in the catalogue, and 650 old entries were revised, but the total number of specimens recorded, numbered, and card-indexed was 21,300, of which 18,500 were mollusks. Until nearly the end of August, Miss Claire Nemec, volunteer Associate, sorted, classified, and labeled many of the Museum's miscellaneous crustaceans.

In nearly all divisions of the Department, valuable assistance was rendered by volunteer or student workers. In the Division of Birds, Mr. Albert Vatter, of Glenview, Illinois, worked for three months, principally on American finches. For varying periods of time, four students aided in the work of the Division of Amphibians and Reptiles. Mr. Fred Bromund continued to list and check the Museum's collection of crocodiles. Messrs. Robert A. Burton, John Kurfess, and Robert Guillaudeu assisted in the naming and distributing of North American material, in checking and relabeling specimens in large tanks, and in preparing scale counts of snakes. During ten months of the year, Miss Charlotte D. Stephany did secretarial work in the Division, as a volunteer. Another volunteer worker was Mr. Walter Serbowski who, during his spare time, did considerable clerical work in the Division of Fishes.

INSTALLATIONS AND REARRANGEMENTS—ZOOLOGY

Two large habitat groups of birds were completed and placed on exhibition in Hall 20, and a Hall of Invertebrates (exclusive of arthropods), designated as Hall M, was opened to the public. Additions to the synoptic exhibits of mammals and birds were also made.

To the series of horned and hoofed mammals in George M. Pullman Hall (Hall 13) were added two antelopes and a chamois. The specimens were mounted by Taxidermist Julius Friesser and Assistant Taxidermist Frank Wonder. One of these animals was a Hunter's antelope obtained by the Harold White John Coats African Expedition 1930; the second was a topi, an antelope collected in eastern Africa by the late Carl E. Akeley on a Museum expedition in 1906; and the third was a good example of the well-known chamois, from Yugoslavia, presented by Father Sholar Wencel, of Peru, Illinois.

With live giant pandas now available at zoos for study, it was found advisable to remount the two specimens in the Museum's group of these animals in William V. Kelley Hall (Hall 17). This work was done also by Messrs. Friesser and Wonder.

In Hall 15, which contains a systematic collection of mammals of the world other than the horned and hoofed ones in George M. Pullman Hall, a case of rodents was reinstalled in an attractive manner by Taxidermist W. E. Eigsti. Twelve of the specimens were renovated and placed on groundwork bases. Two specimens were added to the series, namely, a Malabar giant squirrel, and a rukupi, which is a large rock-inhabiting rodent from Peru. The exhibit of marsupials in the same hall was enlarged by the addition of two specimens, also mounted by Mr. Eigsti. These were a red-necked wallaby with its young, and a dama wallaby or pademelon, which is a small wallaby that lives in dense scrub or among tall marsh grass in southwestern Australia and on the islands off the coast. A number of additional mammals mounted in 1939 are, for various reasons, awaiting installation. They include a bush pig, river hog, about thirty fur seals, five gibbons, and two bats.

The first of the two bird exhibits opened to public view in Hall 20 was a habitat group of the rhea, a large flightless bird of the pampas of southern Brazil and Argentina. In the group is an adult rhea standing beside its nest, which contains thirty eggs and two chicks in the process of hatching. Other birds present are a burrowing owl, a tinamou, and a flycatcher. The background, which was painted by Staff Artist Arthur G. Rueckert, illustrates the vast plains or campo of Matto Grosso, Brazil, where the specimens were collected by Assistant Curator Emmet R. Blake on the Stanley Field Zoological Expedition to British Guiana and Brazil. The birds in this group were mounted by Staff Taxidermist John W. Moyer; and the foreground, for which 60,000 blades of grass were



RED GROUSE

Taxidermy by John W. Moyer

Background by Arthur G. Rueckert. Accessories by Frank H. Lett
(Hall 20)

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made, was produced under the direction of Mr. Frank H. Letl, Preparator of Accessories.

The other new exhibit in Hall 20 is an attractive habitat group of the red grouse. These are game birds well known to sportsmen of the Old World. The group is intended to represent the moors of Selkirkshire, Scotland, in October. Seven birds are shown on or near patches of snow on one of the heather-covered hills of the region. In the background, painted by Staff Artist Rueckert, are portrayed similar hills with intervening cultivated valleys. The birds were mounted by Taxidermist Moyer, and the foreground was constructed under the direction of Mr. Letl.

A temporary exhibit, based on the Bishop Collection of North American birds, was prepared and displayed for six weeks in Stanley Field Hall. Two cases were used: the specimens in one illustrated seasonal plumage changes, geographical variation, and range of color within a genus; in the other case were shown rare and extinct birds of North America. Another temporary exhibit in Stanley Field Hall was a case of various birds' eggs. After the Easter period this exhibit was moved to the west end of Hall 21. A base for five geese and swans was prepared by WPA workers for a case in the series of foreign birds arranged in systematic order in Hall 21. By the same workers, the albino mammals and birds at the east end of that hall were renovated and reinstalled. For an addition, to be made in 1940, to the exhibit of foreign birds, seventeen ducks and geese were mounted by Taxidermist Moyer.

A further increase was made by Taxidermist Leon L. Walters in the number of reproductions prepared for use in the reinstallation of cases in the Hall of Reptiles (Albert W. Harris Hall—Hall 18). The new life-like reproductions in pyralin and cellulose-acetate include a brightly colored wood frog and the six-lined lizard of the Chicago region; two Florida reptiles which are blind worm-like lizards; a Javanese water snake, and a Central American rat snake.

A number of specimens have been accurately reproduced for a new Hall of Fishes which, it is believed, will be opened to the public in 1940. For the Maine and the Texas fish groups in the new hall, Taxidermist L. L. Pray has prepared fifty-three and twenty specimens respectively. Many accessories for these groups have already been installed.

Good progress was made on the preparation of material for exhibits of a biological and anatomical nature. Seventeen enlarged models were completed to illustrate the life history of a frog and a

salamander; and six models, likewise enlarged, were finished for an exhibit to portray the history and mechanism of the muscular system. These models were made under the direction of staff members including Messrs. Karl P. Schmidt, D. Dwight Davis, and Frank H. Lett. Ready for installation are models and preparations, both enlarged and natural size, for showing the external and internal structure of birds. These were skillfully prepared by Miss Nellie Starkson, under the direction of Mr. Rudyerd Boulton, Curator of Birds.

Except for a small series in Stanley Field Hall, invertebrate animals have not been represented for a number of years among the zoological exhibits. This omission was in great part corrected early in April, when a Hall of Invertebrates exclusive of insects and their allies was opened to the public. The new hall, designated as Hall M, contains thirteen cases illuminated in a pleasing manner by a new type of enclosed fluorescent lights. Specimens are displayed on appropriate bluish-green backgrounds. Five of the cases contain the most interesting and attractive examples of more than a hundred families of mollusks, including the cephalopods, some of which are represented by glass models. An individual case protects a specimen of the largest known bivalve shell, the giant clam of the Pacific and Indian oceans. In the seven other cases are sea-stars, corals, hydroids, sponges, models of protozoans, etc. Suspended from the ceiling are models of a giant squid and a giant octopus, representing specimens which were among the largest known.

Because more storage and laboratory space was urgently required for the rapidly increasing collection of amphibians and reptiles, it was found necessary to reassign the adjoining room for this purpose. Desirable changes and improvements were made in this room, which hitherto had been occupied by the bird taxidermist, Mr. John W. Moyer. Three two-sided cases and four wall cases were constructed to permit the expansion of the study collection in this room. For the bird taxidermist, a space especially designed for the purpose was enclosed and equipped in the south end of the fourth floor.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

The work of the Harris Extension staff was directed principally toward three objectives: the maintenance and restoration of existing exhibits to attain a uniform high standard; the promotion of closer co-operation with the public schools in the solution of their problems

in science instruction; and the development of the Department's collections of material for lending.

Approximately 250 local plant specimens were collected during the year for addition to a reference herbarium from which teachers may borrow material for use in the presentation of certain subjects in botany. By this means it will be possible for instructors to obtain accurately named specimens in a sufficient number to cover adequately at one time a particular aspect of the local flora. This type of loan material is intended to supplement the life-like plant models now in circulation.

Plant specimens collected previously, numbering 930, were determined and mounted on herbarium sheets by the Department of Botany. Common names and family relationships were included on typewritten labels attached to the sheets, and each sheet was covered with a transparent wrapping material for protection.

Specimens were collected for the construction of models already under way or planned for the near future, and numerous molds were made for this purpose.

Material relating to the life history of the honeybee was received from Mr. Ellsworth Meineke, of Arlington Heights, Illinois. Besides specimens showing wax production, pollen collecting, and other features of bee life, Mr. Meineke provided a brood frame with live bees in an observation hive. The material is being used to complete exhibits upon which considerable work has already been done.

Forty articles relating to Chicago area Indians, and fifty examples of Mexican pottery, clothing, and Aztec carvings (the last-named in plaster of Paris casts) were transferred from surplus storage material in the Department of Anthropology to the Harris Extension. Dr. Nora Brandenburg, of Chicago, gave fourteen specimens of Indian beadwork obtained on the Rosebud Reservation of South Dakota in 1912. Odd as it may seem, some of the specimens were excellent examples of the type of work done by Indians of the Chicago area.

Approximately 1,500 insects were obtained by purchase for addition to a reserve collection for the replacement of damaged specimens in existing exhibits, or the preparation of new exhibits dealing with insects.

Twenty new installations were completed during the year. These include two duplicate cases showing cliff swallows nesting on a limestone cliff. The descriptive labels for these cases display a map outlining the migration routes of the cliff swallow. This addition

to the label is an example of the attempts now being made to present as many different aspects of a subject as possible.

Two exhibits illustrating the progressive feather changes of the starling were prepared. They show six stages of development and molting. The starling was selected because it is a simple example of birds with only one annual molt.

Four similar cases pertaining to the olive were completed. They contain realistic models of an olive branch in fruit, displayed in association with important economic products of the industry. Photographs and other material needed for the completion of these exhibits were given by the Sylmar Packing Corporation, of Los Angeles, California.

Material relating to the Indians of the Chicago area was installed in eight cases. These exhibits were assembled and installed in response to a special request. They represent the beginning of a new series of cases which are expected to be of special interest to school children.

An exhibit of eight species of fungi was installed in one case. This case is a distinct improvement upon a previous similar exhibit which it replaces. Duplicate exhibits of common flies, moths, and oaks were prepared and installed.

Seven schools were added to the list of those receiving Harris Extension cases, and five were removed for various reasons. The net gain of two brings the total now served to 474.

During 1939, seventeen deliveries or loans of two cases each were made to an average of 473 schools and institutions. The 946 cases thus kept in constant circulation suffered no significant damage to their contents while in the schools, although the cabinet of one exhibit was broken beyond repair. Ten, or slightly more than one per cent, suffered damage to woodwork; in twenty-nine, or slightly above 3 per cent, the front glasses were broken, and on sixty, or 6.3 per cent, the sliding label frames were injured. Thus it is seen that the sliding label frames, which are in the nature of an appendage to the case proper, are the most vulnerable part of the assembly. To strengthen the supports for the frames, in an effort to reduce such damage, forty-four cases were equipped with auxiliary label guides. Fifty-nine cases were fitted with new solid bottoms, replacing plywood bottoms which had split, or in which the layers of wood had separated. "Hanger strips," which relieve the corners of the cabinets from all strain when the cases are hung on hooks, were added to forty-three cases.

One hundred and thirty-two cases with either black or gray interiors were painted buff. In reinstalling the material in the newly painted cases, every practical effort was made to improve appearance by changes in layout, additions of material, or methods of attachment. The guiding policy has been to bring all of the existing exhibits to a uniform standard of quality as quickly as possible, postponing time-consuming replacements or detailed refinements until later.

In addition to the regular circulation of exhibits, thirty-three loans totaling 146 cases were made in response to special requests. Twelve of these loans included collections of unattached objects which could be handled by the pupils. In some instances, where the nature of the specimens permits, this procedure is believed to represent a desirable innovation with added educational advantages.

A comprehensive loan of Mexican material, including four standard cases, as well as foodstuffs, articles of clothing, pottery, and Indian artifacts, was made to the Peterson Elementary School in connection with a school assembly program on Mexico.

Small sets of unmounted rocks and minerals were lent to each of the eight district science advisors of the public elementary schools. In addition, two collections of unmounted rocks, minerals, soils, and fossils, comprising specific objective material needed for instruction in a sixth grade unit of study in science, were lent. Organizations other than schools which received special loans of cases were the Evanston Public Library, the Garden Club of Evanston, the book section of Marshall Field and Company's retail store, the United Charities Camp at Algonquin, Illinois, the Glenwood Park Training Camp (a WPA project) at Batavia, Illinois, and the International Live Stock Exposition at the Union Stock Yards, Chicago.

A new room on the ground floor, near the service entrance to the Museum, was provided for the storage of the school cases. By storing them on shelves, instead of hanging them on racks as was done formerly, a great saving of valuable space has been effected. Cases which once occupied a floor area of 2,214 square feet when in storage on the third floor, now require only 1,190 square feet. A further move toward greater efficiency was the construction of four work tables in the new room in order that cleaning, polishing, and minor repairs may be done close to where the cases are stored. The location of the storerooms also saves valuable time by eliminating trucking of cases to the third-floor area formerly occupied.

The work of placing additional identifying numbers on each of the portable cases available for circulation was completed. The

new numbers were stenciled in a color that harmonizes with the case finish and yet provides greater legibility than the original black figures. Only a title number distinguished the cases formerly, and since there were several cases with different characteristics under each title, it was difficult to locate definitely a particular case once it was out of the Museum.

The two Museum trucks traveled a total of 11,659 miles in the distribution of cases. During the school summer vacation all necessary work was completed to maintain the trucks in good mechanical condition.

The renewed effort on the part of school authorities to stress science instruction in the grade schools has served to emphasize the importance of the work being done by the Harris Extension. Numerous letters of appreciation sent to the Museum by school teachers and principals confirm this opinion.

THE JAMES NELSON AND ANNA LOUISE RAYMOND FOUNDATION FOR PUBLIC SCHOOL AND CHILDREN'S LECTURES

The year 1939 has been one of marked activity in the James Nelson and Anna Louise Raymond Foundation. As in the past, entertainments have been presented in the James Simpson Theatre, guide-lecture tours have been given for an increased number of organizations, and extension lectures in the schools have been broadened in scope. The "radio follow-up" programs begun in 1938 in correlation with the presentations of the Public School Broadcasting Council, were continued. A special series of talks was arranged for the guidance of science teachers in the elementary grades, and an experimental series of educational programs by television was given in co-operation with the Zenith Radio Corporation.

ENTERTAINMENTS FOR CHILDREN — RAYMOND FOUNDATION

Three series of motion picture entertainments and one special patriotic program were arranged for the young people of the community. The programs were as follows:

SPRING COURSE

February 25—The Grasshopper and the Ant (*cartoon by Walt Disney*); Cartoon-land Mysteries; The Plow That Broke the Plain; Neptune's Mysteries.

March 4—How to Know Our Spring Birds; Where Bananas Ripen; Rainbow Natural Bridge; Service Afloat.

- March 11—Father Noah's Ark (*cartoon by Walt Disney*); Living Jewels of the Surf; Sponge Divers of Tarpon; Monkey Business; Old Sea Chanties.
- March 18—Mr. and Mrs. Goldfinch; Cheeka the Indian Lad; Cheeka's Home; Cheeka's Canoe; Cheeka and the Caribou; The Proud Seminoles.
- March 25—Pioneer Days (*cartoon by Walt Disney*); The Strange Duck-billed Platypus; Thrills of Bali.
- April 1—The Declaration of Independence;* Elephants of Today.
- April 8—Busy Beavers (*cartoon by Walt Disney*); In Faraway Manchukuo; We're on Our Way; The Life of a Plant; Spotted Wings.
- April 15—Bill and Bob Trap a Mountain Lion; Our Four-footed Helpers; The Trumpeter; Majorca the Picturesque; Wild Life on the Amazon.
- April 22—Birds in the Spring (*cartoon by Walt Disney*); Chumming with Chipmunks; Leaping Through Life; Pottery Makers of the Southwest; Nature's Armor.
- April 29—In Nature's Workshop; Let's Save a Life; Mountains of Alaska; Our Zoo Acquaintances.

SUMMER COURSE

- July 6—The Musical Farmer (*cartoon by Walt Disney*); "Cimarron" (acted by chimpanzees); Hungarian Gypsy Dances; Grass—A Story of Persia.
- July 13—William Tell—A Story of Switzerland.
- July 20—Frolicking Fish (*cartoon by Walt Disney*); Footprints and Bicycles; Water Fun; Adventures of a Mongrel Pup.
- July 27—The Gang (Boy Scout life).
- August 3—The Busy Beavers (*cartoon by Walt Disney*); The Lovely Taj Mahal; The Navaho Demon; Babes in the Woods.
- August 10—The Wedding of Palo—A Story of Eskimo Life in Greenland.

AUTUMN COURSE

- October 7—Jolly Little Elves (Technicolor cartoon); The 17-year Locust; Hummingbirds at Home; Plants and Animals Prepare for Winter.
- October 14—Gathering of the Clan; Boxing with Kangaroos; Columbus:* (a) At the Court of Isabella; (b) Landing on American Shores.
- October 21—Animal Aristocracy; The "Father of Waters"; Romantic Mexico.
- October 28—Fun with Don Heaton in the Wild West (Mr. Heaton in person).
- November 4—Land of the Giants; Sea-going Thrills on the *Wander Bird*; Oriental Methods of Traveling; Glimpses of Old China.
- November 11—Armistice Day Program: Famous Dixieland Spirituals; The Pilgrims Land at Plymouth;* The Signing of the Declaration of Independence;* The Moon and Its Features.
- November 18—Hunting Musk Ox with the Polar Eskimos; Hunting Walrus; Eskimo Life in Southern Greenland; In the Land of the Reindeer.
- November 25—Winter (*cartoon by Walt Disney*); Learning to Ski; Sonja Henie, the Champion Skater; Life Under the South Seas; The Naas River Indians.

* Yale Chronicles. Gift of the late Chauncey Keep.

In addition to the afore-mentioned series of entertainments, a special program was given on Washington's Birthday featuring the films "Washington as a Boy," and "Washington as a Man."

The total number of motion picture programs offered in the James Simpson Theatre was twenty-five, and the attendance at

these children's entertainments was 31,363. Of this number, 10,926 attended the spring course, 4,797 the summer course, 14,079 the autumn series, and 1,561 the special patriotic program.

Publicity was given to the programs by the *Chicago Daily News*, *Chicago Tribune*, *Chicago Herald-American*, *Chicago Daily Times*, and *Downtown Shopping News*, as well as many neighborhood and suburban papers.

FIELD MUSEUM STORIES - RAYMOND FOUNDATION

Several changes were made in the stories for children prepared by members of the Raymond Foundation staff. The name was changed from *Museum Stories for Children* to *Field Museum Stories*. Each story became a number of a looseleaf series to be kept constantly in print for distribution at the Museum Book Shop. The form was enlarged to fit into binders of average size, and the back page of each story was left blank for notes of the recipient or purchaser. The Book Shop carried binders which were sold at a low cost to those attending the showings of the motion pictures.

Following is the list of *Field Museum Stories* for 1939:

Series XXXII - Shadow Shows and Puppet Plays; Nature's Bridges; Animals of the Surf; A Birch Bark Canoe; The Strange Platypus; Elephants of Today; In Faraway Manchukuo; Horns and Antlers; Pueblo Pottery; Nature's Crystals.

Series XXXIII - Why Leaves Change Color; Poisonous Snakes of the Western World; The Quetzal - Sacred Bird of the Aztecs; Sand-Paintings of the Navaho Indians; Chinese Writing; The Man in the Moon; The Walrus and the Narwhal; The Potlatch.

A total of 28,000 Museum Stories was distributed to those attending the Saturday morning programs.

LECTURE TOURS FOR CHILDREN - RAYMOND FOUNDATION

The use of the exhibition halls for classwork was extended to the following groups by means of conducted tours:

	Number of groups	Attendance
Tours for children of Chicago schools:		
Chicago public schools	507	18,407
Chicago parochial schools	40	1,482
Chicago private schools	11	188
Tours for children of suburban schools:		
Suburban public schools	294	8,992
Suburban parochial schools	20	657
Suburban private schools	6	95
Tours for special groups from clubs and other organizations	222	8,354



MOLLUSKS

Type of revised installation of lower invertebrates
(Hall M)

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Guide-lecture service was thus given to 1,100 groups, and the aggregate attendance was 38,175. Several of the schools receiving the tour service were also given illustrated talks in the Lecture Hall preceding the tour of the exhibition halls. These talks introduced the groups to the subjects in which they were to receive instruction, and oriented them for the tours. The leaders of the groups expressed themselves most enthusiastically regarding this type of Museum activity. As in 1938, many groups came from outside of the state. On December 5 and 7, the Museum was host to parties of 4-H Club boys and girls who visited the Museum for special tours of the halls devoted to prehistoric plant and animal life, prehistoric man, the living races of mankind, and the animal exhibits. The total number of delegates to the National Congress of 4-H Clubs who attended these special tours was 1,018.

EXTENSION LECTURES—RAYMOND FOUNDATION

Extension lectures were offered to groups in educational institutions as in the past. For the first time, the lecturers have gone to the hospitals in which the Board of Education maintains teachers for confined pupils. Talks were given before groups of both ambulatory and bed cases with most satisfactory results. The number of lectures presented before camp, church, and club groups also increased. A new and more attractive form of lecture list was sent out giving the subjects of lectures offered for presentation in classrooms, laboratories and auditoriums. The subjects offered to high school groups were as follows:

The Dynamic Earth and Its Meaning to Man; Animals and Plants of Prehistoric Ages; The Natural Fauna of the Chicago Region; The Natural Flora of the Chicago Region; Prehistoric Man; Ancient Roman Life; Egyptian Customs and Art; Behind the Scenes at Field Museum; Taxidermy at Field Museum (demonstration to groups of 75 or less).

The subjects offered to elementary schools were:

FOR GEOGRAPHY AND HISTORY

North American Indians: Woodland Indians, Plains Indians, The Pueblos and the Navahos; Migisi, the Indian Lad; Mexico, the Land of the Feathered Serpent; Caribbean Lands (sugar, coffee, cacao, rubber, chicle, bananas, mahogany); South America; Life in Hot and Cold Lands; The Romans; The Egyptians; Prehistoric Peoples; Glimpses of Chinese Life.

FOR SCIENCE GROUPS

The Changing Earth: Earth History, Work of Wind and Water, Geography of the Chicago Area; Prehistoric Plants and Animals; Insect Friends and Enemies; Snakes and Their Relatives; Coal and Iron; Animals of the World at Home; Chicago Birds, Animals, Trees, Wild Flowers; Our Outdoor Friends; Nature in City Yards and Parks; Behind the Scenes at Field Museum.

Extension lecture service was given as follows:

	Number of groups	Attendance
Elementary school groups.....	459	164,663
High school groups.....	63	17,985
Camps, clubs, and other organizations.....	82	4,029

The extension lectures given by the staff of the Raymond Foundation thus totaled 604, and the aggregate attendance was 186,677.

RADIO PROGRAMS—RAYMOND FOUNDATION

The staff of the Raymond Foundation again co-operated with the Public School Broadcasting Council by presenting two series of programs which followed radio broadcasts given by the Council. These programs were based upon Museum exhibits which correlated with the subjects of the broadcasts. Meetings were held in the Lecture Hall and the James Simpson Theatre, according to the number in attendance. The audiences were composed of representatives of the grades most interested in the subjects being discussed. Mimeographed information sheets were distributed, sample materials examined, and informal discussions encouraged. The meetings were followed by tours of the halls devoted to the topic of the day. The subjects were: Meteorites; Tree Growth Rings; Spring Wild Flowers; Grasses and Forage Plants; Protective Coloration. Twelve groups came to the Museum for assistance along these lines, and the attendance was 1,228 pupils.

TELEVISION PROGRAMS—RAYMOND FOUNDATION

During the months of September and October, Field Museum entered an entirely new field of activity. In co-operation with the Zenith Radio Corporation, it participated in a series of experimental programs of an educational nature over the television station W9XZV. Members of the Raymond Foundation staff were the speakers, and they were televised, as were the stereopticon slides, exhibition objects, living reptiles, and pictures they used to illustrate their subjects. The topics on which the lecturers spoke were: Introduction to Field Museum; The Story of the Earth; Native American Food Plants; Life Stories of Snakes; Hunters, Herders, and Farmers; Expeditions and Their Value to Chicagoans. A second series is to be presented during the early part of 1940.

TEACHERS' TRAINING COURSE—RAYMOND FOUNDATION

The science supervisors of the Chicago Public Schools co-operated with Field Museum in presenting a series of talks and tours for the

benefit of those teachers engaged in teaching science in the third, fourth, fifth, and sixth grades. The meetings were concerned with the science course presented to elementary grades during the first half of the 1939-40 school year. On November 4, the fifth and sixth grade teachers were guests of the Museum, and on November 18, third and fourth grade teachers received assistance. The subjects treated were: Earth History; Rocks and Minerals; Trees and Fungi; Bird Migrations; Cats, Dogs, and the Deer Family; Animals of the World; Winter Birds; Soil Erosion. The talks in the Lecture Hall were followed by tours and discussions. The comments of supervisors and teachers indicate that this type of Museum activity is of great importance to the teachers of the city and suburbs. Three hundred and fifty-four teachers took advantage of the programs offered.

ACCESSIONS—RAYMOND FOUNDATION

For use in the Theatre, Lecture Hall, and in extension lectures, the Raymond Foundation acquired 1,513 stereopticon slides made by the Division of Photography. The Museum Illustrator, and assistants furnished by the Works Progress Administration, colored 839 of these.

The Foundation also received from Dr. Henry Field five large colored transparencies of Egyptian subjects; from Mr. John R. Millar, fifteen colored slides illustrating preparation of exhibits; and from the Chicago Slide Company, one slide of a Huon Gulf coconut shell cup.

LECTURE TOURS AND MEETINGS FOR ADULTS—RAYMOND FOUNDATION

Guide-lecture service was made available without charge to clubs, conventions, hospital student groups, church groups, and other organizations, and to Museum visitors in general. During July and August, morning tours as well as afternoon tours were given. Monthly schedules of tours offered were printed, and copies distributed at the main entrance of the Museum. City and suburban libraries and other civic organizations co-operated by distributing the schedules. Tours for the public included 101 of a general nature, and 194 on specific subjects. In the 281 groups which participated the gross attendance amounted to 5,117 persons. There were also special tours for 163 groups from colleges, clubs, hospitals, and other organizations, with 3,809 in attendance.

The Raymond Foundation assisted in the commencement exercises held on June 8, for 1,077 foreign-born adults. As in past

years, the James Simpson Theatre was made available to the Board of Education for the purpose.

The use of the Lecture Hall was granted to several groups for meetings of various kinds. Among these were the science teacher meetings, lectures for school groups, club meetings, and the radio follow-up programs. In all, thirty-one groups, totaling 2,547 persons, were served by the Raymond Foundation in the Lecture Hall.

SUMMARY OF ATTENDANCE AT ENTERTAINMENTS, LECTURES, ETC.

The various activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures reached a grand total of 2,205 groups with an aggregate attendance of 268,765.

LECTURES FOR ADULTS

The Museum's seventy-first and seventy-second courses of free lectures for adults were presented in the James Simpson Theatre on Saturday afternoons during the spring and autumn months. As in past years, they were illustrated with motion pictures and stereopticon slides. Following are the programs of both series:

SEVENTY-FIRST FREE LECTURE COURSE

- March 4—Where Falls the Yellowstone.
Mr. Alfred M. Bailey, Colorado Museum of Natural History, Denver.
- March 11—Rainbow River.
Mr. Martin K. Bovey, Concord, Massachusetts.
- March 18—Tropical Brazil.
Mr. James C. Sawders, Nutley, New Jersey.
- March 25—Africa Speaks Again.
Dr. Paul C. Hoeffler, Los Angeles, California.
- April 1—The Basket Maker Indians in Eighth Century Colorado.
Dr. Paul S. Martin, Field Museum of Natural History.
- April 8—Life Among the Alaskan Eskimos.
Mr. Elder C. Anderson, Minneapolis, Minnesota.
- April 15—Colorful Caribbean Shores.
Mr. William B. Holmes, Evanston, Illinois.
- April 22—Mysterious Kinabalu.
Mr. Harold J. Coolidge, Jr., Museum of Comparative Zoology, Cambridge, Massachusetts.
- April 29—Western Wild Flowers.
Mr. John Claire Monteith, Hollywood, California.

SEVENTY-SECOND FREE LECTURE COURSE

- October 7—A Naturalist's Diary.
Mr. Karl Maslowski, Cincinnati, Ohio.
- October 14—Through Africa Unarmed.
Mr. Lewis N. Cotlow, New York City.
- October 21—The Life Story of the Otter.
Mr. C. J. Albrecht, Field Museum of Natural History.

- October 28—Wings from the North.
Mr. Martin K. Bovey, Concord, Massachusetts.
- November 4—Wonders of Plant Life.
Mr. Arthur C. Pillsbury, Berkeley, California.
- November 11—What Is Biblical Archaeology and Why?
Dr. Nelson Glueck, Director of American School of Oriental Research, Jerusalem.
- November 18—The Tundra Speaks.
Dr. Arthur C. Twomey, Carnegie Museum.
- November 25—Stratosphere Exploration.
Major Chester L. Fordney, Great Lakes, Illinois.

At these seventeen lectures the total attendance was 16,596 persons, of whom 9,608 attended the spring series, and 6,988 the autumn series.

LAYMAN LECTURE TOURS

Mr. Paul G. Dallwig, volunteer member of the Museum staff with the title of The Layman Lecturer, continued his popular Sunday afternoon lecture tours of Museum exhibits during all except the summer and early autumn months. As in the previous seasons since this activity was inaugurated in 1937, demands for accommodations were so large that, to keep the groups participating within limits practicable for handling, it was necessary strictly to limit their size, and to require reservations in advance. In many instances, reservation lists were filled several weeks in advance. In all, Mr. Dallwig conducted thirty parties, and the aggregate attendance was 2,647, or an average of 88 persons on each lecture tour. This average is higher than that of 1938 (which was 80), although the total attendance was slightly lower due to the fact that lecture tours were given on four fewer Sundays.

Presenting his subjects from a new point of view, Mr. Dallwig carries into his work the enthusiasm and accuracy of a true scientist. His interpretations of the subjects, presented in wholly non-technical terms, make science easily understood and appreciated by his audiences.

It should be emphasized that Mr. Dallwig's activities are wholly altruistic. He receives no compensation, direct or indirect, from either the Museum or his audiences. His only reward is in the satisfaction that he is performing a notable service to the public and to the cause of science.

The subjects presented by Mr. Dallwig during 1939 were as follows:

January (four Sundays)—Parade of the Races (Hall of Man).

February (four Sundays)—Gems, Jewels and "Junk" (Hall of Minerals and the Gem Room).

March	four Sundays	Nature's "March of Time" (Hall of Historical Geology).
April	five Sundays	Digging Up the Cave Man's Past (Hall of the Stone Age of the Old World).
May	(four Sundays)	Parade of the Races (Hall of Man).
November	four Sundays	Gems, Jewels and "Junk" (Hall of Minerals and the Gem Room).
December	(five Sundays)	Parade of the Races (Hall of Man).

SUMMARY OF ATTENDANCE AT LECTURES, ETC.

Instruction or similar service was rendered by the Museum to a total of 2,252 groups comprising 288,008 individuals. These figures include all those reached in the 2,205 groups aggregating 268,765 children and other persons who participated in the various activities under the auspices of the James Nelson and Anna Louise Raymond Foundation, in addition to the 16,596 who attended the lectures for adults in the James Simpson Theatre, and the 2,647 who participated in the Sunday afternoon tours presented by the Layman Lecturer.

THE LIBRARY

Steady growth in the Museum Library's collections, and a notable extension of the services rendered through them to scientists and to the public generally, marked the year 1939. With new acquisitions, the total number of books and pamphlets on the shelves reached a total of approximately 118,000. Simultaneously with the expansion of the available literature, there has occurred a growing recognition of the Library's position as a leading reference collection in its specialized fields. This is shown by the large number of persons, both research workers and laymen, who have made use of its facilities, which include many rare and valuable works not duplicated in any other institution in the Middle West, and some not to be found elsewhere in the United States as a whole. Especially gratifying has been the fact that the Library has been consulted by students and instructors from colleges, universities, secondary institutions, and other schools. Actually, the seating capacity of the Reading Room has at times been taxed by groups of this type of reader. They have come not only from schools in Chicago and its immediate vicinity, but have included some from far distant localities, north, south, east, and west.

An important development of the year was the renewal of subscriptions to a number of periodicals which had been discontinued in previous years, and the addition of a few others considered especially valuable. Among the periodicals added are: *Animal and*

Zoo, Chronica Botanica, Botanical Miscellany, Fossilium Catalogus, Monumenta Serica, Palaeontographica Americana, Rabenhorst: Cryptogamenflora Deutschlands, Temminckia, and Bronn's Tierleben.

Progress has been made also in filling out incomplete files of the publications of various learned societies and institutions, many of which are received through exchanges for publications issued by Field Museum. Containing reports of scientific work being carried on in many parts of the world, the publications thus received from co-operating institutions are invaluable to Field Museum's scientific staff and to other scholars. The Library's plans embrace continuing efforts toward filling the remaining gaps in the files of such publications.

In addition to obtaining new exchanges, it has fortunately been possible to complete by purchase the files of many other publications which were hitherto incomplete.

A problem was presented by the beginning of the European war, which had an immediate adverse effect on the receipt of many foreign publications. Some of these ceased publication altogether for the duration of the conflict; others were curtailed in size, and became irregular in appearance; a number which have managed to carry on thus far face a precarious future.

The Library has benefited by the foreign expeditions of members of the Museum staff. Incidental to their work in the field, Museum men have made many valuable contacts with other scientific institutions, and these have resulted in the establishment of new exchange relationships of a highly desirable nature.

During the latter months of the year, an experienced book-binder was employed to recondition valuable books which had deteriorated due to age.

The acquisition of a number of new map cases is important. These permit the assemblage in one place of maps that previously were scattered in various parts of the building, thus making it more convenient for persons desiring to refer to them. It also facilitates proper care of the maps, some of which were in need of repairs when received in the Library. This work is in progress. Usefulness of the maps has been increased not only by their greater accessibility in the new location, but also by a catalogue, consisting of approximately 1,100 cards, prepared by Mr. Peter Gerhard, of Winnetka, a volunteer worker whose services in this project are greatly appreciated.

Another addition to the Library is a new case especially for rare books. Although it is not the policy of the Museum to purchase

books simply because of rarity, but rather for their pertinence to the fields of knowledge in which the Museum and its Library are specializing, a number of books of great rarity have nevertheless accumulated as a result both of gifts and purchases. Some of these were published in the very early days of printing. Most of them are noteworthy for their significance in the history of science. Because of their age and value they require special care which the new book-case makes possible.

Some space on the Library shelves, required for the expanding collections, was made available by returning to the Library of Congress fifty-two volumes of the early Reports of the Secretary of War, which did not properly fall within the scope of a library of natural history.

Many persons and institutions have contributed generously to the Library. From the Carnegie Institution, of Washington, D.C., there have again been received, as in previous years, many publications which have a bearing upon research work in progress at Field Museum. Useful botanical works were presented by Dr. E. E. Sherff, the Museum's Research Associate in Systematic Botany. Mr. Stanley Field, President of the Museum, continued his custom of presenting, as they are published, the issues of the *Illustrated London News* in which appear many notable pictures and articles on scientific subjects, particularly in archaeology. Among others who are donors of periodicals on a regular basis are Mr. Elmer S. Riggs, Curator of Paleontology; Dr. Henry Field, Curator of Physical Anthropology; Mr. William J. Gerhard, Curator of Insects; Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles; and Mr. Clifford C. Gregg, Director of the Museum. Members of the staff who have given other books include Dr. Field; Dr. Albert B. Lewis, Curator of Melanesian Ethnology; Mr. Paul C. Standley, Curator of the Herbarium; Mr. Henry W. Nichols, Chief Curator of Geology; Dr. Paul S. Martin, Chief Curator of Anthropology; and Mr. J. Francis Macbride, Associate Curator of the Herbarium.

Among other donors of especially valuable books are Dr. Sylvanus G. Morley, of the Carnegie Institution, Washington, D.C.; Miss Margaret Ennis, of Chicago; Dr. Eugene Murray-Aaron, of Chicago; Mr. W. T. Stearn, of London, England, and Mrs. Georg Vetlesen, of New York. Mrs. Vetlesen's gift consisted of two beautifully prepared volumes on Chinese jade carvings [sixteenth to nineteenth centuries]. These books, prepared by Mr. Stanley Charles Nott, describe and picture objects in Mrs. Vetlesen's own collection.

OLIVES

The common olive tree is a native of southern Europe and Asia Minor where it now grows in most of the countries bordering the Mediterranean Sea. It is well adapted to the World with suitable climate. Soon after the discovery of the olive tree, it was introduced by man into America and from there into California, where it has become an important crop.

The fruit of the olive is a drupe. The oil contained in the fleshy part of the fruit is pressed out and used for food and for making soap. The fruit is also used for making oil which is then mixed with water and given a second pressing. The oil is then used for making soap. The fruit is also used for making oil which is then mixed with water and given a second pressing. The oil is then used for making soap.

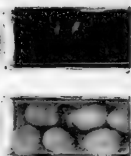
The olive tree grows very slowly and lives to a great age. It has a hardy, but sensitive nature. The soil is sometimes sand and sometimes loam. It is sometimes found under such as English olive, Ash, Italian olive, and others. The olive is the fruit of the tree and the fruit is always to be seen in the spring in California and elsewhere.

OLIVES



PICKING OLIVES IN A CALIFORNIA GROVE.

Olives which are to be eaten must be picked when they are green and before they have begun to ripen. They are then washed in a solution of soda ash and water to remove the wax which covers them. They are then washed in a solution of soda ash and water to remove the wax which covers them. They are then washed in a solution of soda ash and water to remove the wax which covers them.



OLIVE OIL FOR COOKING AND FOR LIGHT

PORTABLE NATURAL HISTORY EXHIBIT FOR CHICAGO SCHOOLS
Prepared by the N. W. Harris Public School Extension of Field Museum

One-sixth actual size

UNITED STATES OF AMERICA
LIBRARY

Among important purchases of the year should be mentioned the following: Linden and Rodigas, *Lindenia* (12 vols.); Franz Werner, *Catalog der Conchylien Sammlung* (3 vols.); Seler, *Gesammelte Abhandlungen zur Amerikanischen Sprach und Alterthumskunde* (5 vols.) (translation); De Toni, *Sylloge Algarum; La Nouva Notarisia* (1889-1925); S. Umehara, *Objects from the Old Tombs of Chun T'sung in Lolang*; Edgeworth, *Cranial Muscles of Vertebrates*; Kappers and others, *Comparative Anatomy of the Nervous System*; *Indian Arts and Letters* (new series, vols. 2-8); and D. A. Bannerman, *Birds of Tropical Africa* (vols. 2-5).

As in previous years, the Library acknowledges with gratitude the courtesies extended to it by the Library of Congress, Washington, D.C.; the John Crerar Library, Chicago; the Library of the University of Chicago; the Library of the American Museum of Natural History, New York; the Library of the Peabody Museum at Harvard University; the Columbia University Library, New York; and the Library of the Missouri Botanical Garden, St. Louis.

Special mention should be made of the untiring work of Mrs. Emily M. Wilcoxson, Librarian, and Mrs. Mary W. Baker, Associate Librarian, for their ceaseless efforts in classifying and making available to scientists and other research workers the tremendous store of scientific information on deposit at Field Museum Library.

PUBLICATIONS AND PRINTING

As in previous years, the Museum distributed generously the numerous publications issued during 1939. To the institutions and individual scientists on its exchange lists the Museum last year sent 14,894 copies of scientific publications, 1,557 leaflets, 99 miscellaneous publications and pamphlets, and 288 copies of large maps showing tribal allocation in the Near East. Domestic and foreign distributions were about equal. An increase of twenty-eight was made in the number of names on the domestic and foreign exchange lists.

The Museum also sent 3,797 copies of the *Annual Report of the Director* for 1938, and 621 copies of leaflets, to Members of the institution.

Sales during the year totaled 2,330 scientific publications, 7,737 leaflets, and 12,033 miscellaneous publications and pamphlets, such as Guides, Handbooks, and Memoirs.

Sixteen large boxes containing 2,787 individually addressed envelope parcels and 307 wrapped packages of publications were

shipped to the Smithsonian Institution at Washington, D.C., through whose bureau of international exchanges distribution was made to foreign destinations. Grateful acknowledgment is made of this courtesy. An approximately equal quantity of these books was sent by stamped mail to domestic institutions, libraries, and scientists on the exchange lists.

For future sales and distribution, 22,518 copies of various publications and leaflets were wrapped in packages, labeled, and stored in the stock room.

A notable volume has been added to the Zoological Series by the publication of the first two parts of *A Bibliography of Birds*, by Dr. Reuben Myron Strong. This bibliography is intended as a guide to the literature of the many phases of the biology of birds, rather than as an index to everything that has ever been written about them. It is hoped that the book may serve as a stimulus to those who are interested in things about birds other than their names, places in the scheme of classification, and regions in which they live.

Another important volume published is *Contributions to the Anthropology of Iran*, by Dr. Henry Field. It is accompanied by two maps, size $19 \times 24\frac{1}{2}$ inches, which show the distribution of tribes in Iraq and in western Iran.

Two pamphlet-size leaflets were issued during the year in the botany series. They are *Carnivorous Plants* and "*The Man-Eating Tree*," and *Mistletoe and Holly*.

The sale of 1,538 copies of *The Races of Mankind* and *Prehistoric Man* again gives evidence of the great amount of public interest in these two subjects.

The total number of post cards sold during 1939 was 92,325, of which 11,762 were grouped into 554 sets.

The Museum issued a colored post card of its habitat group of wild turkey, reproduced from a natural color photograph made by Mr. Clarence B. Mitchell, Research Associate in Photography at Field Museum. One new black and white view, also a zoological subject, was added to the assortment of individual post cards.

Production of the Division of Printing included twenty-eight new numbers in the Museum's regular publication series. These comprised 3,152 pages of type composition. Five of these were anthropological in subject matter, four botanical, five geological, thirteen zoological, and one was the *Annual Report of the Director* for 1938. The aggregate number of copies of these printed by

Field Museum Press was 29,707. Of three indexes—one zoological and two botanical—consisting of 94 pages, 2,481 copies were printed. In the two new botanical leaflets issued, the number of pages was 50, and the copies aggregated 4,544. A reprint totaling 3,564 copies of the nineteenth edition of the *General Guide*, containing 56 pages and six illustrations, was issued. An eighth edition of the *Handbook of Field Museum*, consisting of 76 pages, was also issued, followed by a reprint, the two printings totaling 2,786 copies. The total number of pages printed in all books was 3,504; the total number of copies issued was 43,082.

Miscellaneous job work, the total of which exceeded that of any previous year, consumed a large part of the time in the Division. Of major importance was the printing of twelve issues of *Field Museum News*, which was increased to eight pages per issue at the beginning of the year, with an average of 5,000 copies a month. This increase made it possible to amplify the information sent out monthly to the members of the Museum, and others. Exhibition labels printed for all Departments of the Museum during the year reached a total of 4,996. Other impressions, including *Field Museum News*, Museum stationery, posters, lecture schedules, post cards, etc., brought the total for the year to 1,012,326.

The splendid record of achievement in the field of publications is in no small sense due to the careful and efficient work of Miss Lillian A. Ross, editor and proofreader, whose knowledge and ability in the field of scientific publication have made possible comparatively large scale production with a negligible minimum of error. The responsibility for the distribution of Museum publications in turn rests upon the capable shoulders of Mrs. Elsie H. Thomas, who has carefully systematized her office in order to eliminate loss of time between the pressroom at Field Museum and scientific libraries throughout the world.

A detailed list of publications follows:

PUBLICATION SERIES

- 435.—Zoological Series, Vol. 24, No. 1. New Central American Frogs of the Genus *Hypopachus*. By Karl P. Schmidt. January 30, 1939. 6 pages, 1 text-figure. Edition 843.
- 436.—Zoological Series, Vol. 24, No. 2. A New Lizard from Mexico, with a note on the genus *Norops*. By Karl P. Schmidt. January 30, 1939. 4 pages, 1 text-figure. Edition 800.
- 437.—Zoological Series, Vol. 24, No. 3. A New Australian Lizard, with a note on *Hemiergis*. By Hobart M. Smith. January 30, 1939. 4 pages, 4 text-figures. Edition 822.
- 438.—Zoological Series, Vol. 24, No. 4. Notes on Mexican Reptiles and Amphibians. By Hobart M. Smith. January 30, 1939. 22 pages, 1 text-figure. Edition 823.

439. Botanical Series, Vol. 20, No. 1. The Myxophyceae of Maryland. By Francis Drouet. February 28, 1939. 14 pages, 1 text-figure. Edition 1,096.
440. Geological Series, Vol. VI, No. 23. A New Amphibeyon from the Deep River Miocene. By Paul O. McGrew. March 24, 1939. 10 pages, 5 text-figures. Edition 859.
441. Geological Series, Vol. VI, No. 24. New Pantodonta and Dinocerata from the Upper Paleocene of Western Colorado. By Bryan Patterson. March 24, 1939. 34 pages, 12 text-figures. Edition 850.
442. Zoological Series, Vol. 25, Part I. A Bibliography of Birds. Author Catalogue, A to J. By Reuben Myron Strong. March 22, 1939. 464 pages. Edition 1,365. (Combined with Publication No. 457.)
443. Report Series, Vol. XI, No. 3. Annual Report of the Director for the year 1938. January, 1939. 170 pages, 12 plates. Edition 5,585.
444. Anthropological Series, Vol. XXIII, No. 3. Modified Basket Maker Sites, Ackmen-Lowry Area, Southwestern Colorado, 1938. By Paul S. Martin. June 27, 1939. 196 pages, 86 text-figures, 1 colored plate, 19 maps. Edition 739.
445. Zoological Series, Vol. 26. The Mexican and Central American Lizards of the Genus *Sceloporus*. By Hobart M. Smith. July 27, 1939. 398 pages, 31 plates, 59 text-figures. Edition 811.
446. Anthropological Series, Vol. XX, No. 3. Archaeology of Santa Marta, Colombia. The Tairona Culture. Part II, Section 2. Objects of Pottery. By J. Alden Mason, with an appendix on ceramic technology by Donald Horton. August 15, 1939. 146 pages, 85 plates, 26 text-figures. Edition 625.
447. Zoological Series, Vol. 24, No. 5. Eight New Bats of the Genus *Rhinolophus*. By Colin Campbell Sanborn. September 19, 1939. 8 pages. Edition 928.
448. Zoological Series, Vol. 24, No. 6. A New Coral Snake from British Guiana. By Karl P. Schmidt. September 19, 1939. 4 pages, 1 text-figure. Edition 915.
449. Zoological Series, Vol. 24, No. 7. Reptiles and Amphibians from Southwestern Asia. By Karl P. Schmidt. September 19, 1939. 44 pages, 1 text-figure. Edition 894.
450. Zoological Series, Vol. 24, No. 8. Malacological Notes. By Fritz Haas. September 19, 1939. 12 pages, 3 text-figures. Edition 799.
451. Zoological Series, Vol. 24, No. 9. Carcinological Notes. By Claire Nemece. September 19, 1939. 4 pages, 3 text-figures. Edition 817.
452. Zoological Series, Vol. 24, No. 10. Three New Birds of the Genus *Stachyris*. By H. G. Deignan. September 19, 1939. 6 pages. Edition 835.
453. Botanical Series, Vol. XVII, No. 6. Genus *Labordia*. Hawaiian Euphorbiaceae. Labiatae and Compositae. By Earl Edward Sherff. September 19, 1939. 168 pages. Edition 920.
454. Geological Series, Vol. VI, No. 25. A Specimen of *Elasmosaurus serpentinus*. By Elmer S. Riggs. October 31, 1939. 8 pages, 3 text-figures. Edition 849.
455. Geological Series, Vol. VI, No. 26. *Nanodelphys*, an Oligocene Didelphine. By Paul O. McGrew. October 31, 1939. 8 pages, 1 text-figure. Edition 827.
456. Geological Series, Vol. VII, No. 5. Radioactive Determination of Protactinium in Siliceous Terrestrial and Meteoritic Material. By Robley D. Evans, Jane L. Hastings, and Walter C. Schumb. October 31, 1939. 8 pages. Edition 1,180.
457. Zoological Series, Vol. 25, Part II. A Bibliography of Birds. Author Catalogue, K to Z. By Reuben Myron Strong. November 30, 1939. 474 pages. Edition 1,350. (Combined with Publication No. 442.)
458. Anthropological Series, Vol. 29, No. 1. Contributions to the Anthropology of Iran. By Henry Field. December 15, 1939. 508 pages, 20 text-figures, 1 map. Edition 750.

459.—Anthropological Series, Vol. 29, No. 2. Contributions to the Anthropology of Iran. By Henry Field. December 15, 1939. 198 pages, 4 text-figures, 144 plates. Edition 750.

Map A. Distribution of Tribes in Iraq. Size $19 \times 24\frac{1}{2}$ inches. (To accompany "The Anthropology of Iraq," by Henry Field, Anthropological Series, Vol. 30.) Edition 1,000.

Map B. Distribution of Tribes in Western Iran. Size $19 \times 24\frac{1}{2}$ inches. (To accompany "Contributions to the Anthropology of Iran," by Henry Field, Anthropological Series, Vol. 29.) Edition 1,000.

460.—Botanical Series, Vol. 20, No. 2. Francis Wolle's Filamentous Myxophyceae. By Francis Drouet. December 22, 1939. 50 pages, 1 text-figure. Edition 1,050.

461.—Botanical Series, Vol. 20, No. 3. The Planktonic Freshwater Species of Microcystis. By Francis Drouet and William A. Daily. December 22, 1939. 20 pages. Edition 1,000.

462.—Anthropological Series, Vol. 31, No. 1. Anthropometric Observations on the Eskimos and Indians of Labrador. By T. Dale Stewart. December 30, 1939. 164 pages, 16 plates, 1 text-figure, 1 map. Edition 625.

Botanical Series, Vol. XVIII. Index. January, 1939. 46 pages. Edition 831.

Botanical Series, Vol. XIII, Part II. Index. February, 1939. 24 pages. Edition 824.

Zoological Series, Vol. XX. Index. July, 1939. 24 pages. Edition 826.

LEAFLET SERIES

Botany, No. 23. Carnivorous Plants and "The Man-Eating Tree." By Sophia Prior. 20 pages, 8 plates. February, 1939. Edition 2,044.

Botany, No. 24. Mistletoe and Holly. By Sophia Prior. 30 pages, 8 text-figures. December, 1939. Edition 2,500.

HANDBOOK SERIES

Handbook. Information concerning the Museum—its history, building, exhibits, expeditions, endowments, and activities. Eighth edition. February, 1939. 76 pages, 8 plates, 1 cover design. Edition 2,248.

Handbook. Eighth edition (reprint). February, 1939. 76 pages, 8 plates, 1 cover design. Edition 538.

GUIDE SERIES

General Guide to Field Museum of Natural History Exhibits. Nineteenth edition (reprint). 1939-40. 56 pages, 9 text-figures, 1 cover design. Edition 3,564.

PHOTOGRAPHY AND ILLUSTRATION

Negatives, prints, photographic enlargements, lantern slides, transparencies, etc., produced in the Division of Photography during 1939 totaled 23,385 items. Of these the great majority were to fulfill requirements of the various Departments and Divisions of the Museum, but the total includes also 461 prints, enlargements, and slides made for sales on orders received from outside the Museum.

The Staff Photographer and his Assistant were responsible for the production of 9,139 of the total items. The remainder were the work of several workers assigned by the federal Works Progress Administration. The Museum men did the work which required

most skilful attention, and that performed by WPA workers was more routine in character, consisting chiefly of making prints, largely of type specimens of plants for the Herbarium from negatives secured in Europe as a result of a project of the Department of Botany.

Continuance of the important task of classifying, indexing, and numbering negatives and prints, and maintaining the collection of negatives in the files in systematic order, was made possible by clerical helpers furnished by the WPA. In this work, more than 47,000 items were handled. Without such systematization, the usefulness of the photographic files would be greatly decreased.

The Museum Collotyper and his assistant produced a total of 830,737 prints. These included illustrations for publications and leaflets, covers for books and pamphlets, picture post cards, headings for lecture posters, and miscellaneous items.

Work performed by the Museum Illustrator included the making of 51 drawings, coloring of 400 stereopticon slides, retouching of 94 photographs, blocking of 96 photographic negatives, and various other tasks.

PUBLIC RELATIONS

The year 1939 was marked by improvement of *Field Museum News*, the monthly bulletin sent to all Members of the Museum. Its size was increased from four to eight pages, its typographical makeup was changed to afford better legibility, and its editorial content was expanded. The publication of some longer articles, and of a greater variety of articles, both long and short, was thus made possible. The number of illustrations was also increased. The twelve issues of the year constituted the tenth volume, and, as during the previous nine years of publication, copies were sent promptly to all Members at the beginning of each month. Among new features were: a series of editorials under the heading "From the Director's Desk"; various articles of considerable length which enabled members of the scientific staff to present their reminiscences of expeditions; expositions of certain interesting angles of scientific research and technique, and historical phases of various subjects illustrated by the exhibits. Again, as in 1938, the use of a four-color illustration was made possible as a result of the contribution, by Mr. Clarence B. Mitchell, Research Associate in Photography, of color photographs he made, and the special process plates from which to print reproductions of them. Mr. Mitchell's four-color illustration this year showed the Museum's wild turkey group, and appeared in

the November issue as a Thanksgiving feature, accompanied by a special article written by the Curator of Birds.

Besides maintaining constant contact between the Museum and its Members, and keeping them informed of the institution's activities, *Field Museum News* serves as a form of correspondence between this Museum and institutions all over the world on publication exchange lists. It also functions as a medium of publicity, supplementing the mimeographed news releases circulated by the Division of Public Relations. Many of the articles in the *News* were reprinted or quoted in newspapers and magazines.

Through general publicity, every effort was made by the Museum to keep the public promptly, constantly, and thoroughly informed of all the institution's activities. The 321 news releases, prepared and distributed to daily newspapers by the Public Relations Counsel during the year, covered all Museum services for the public such as lectures, children's programs, tours, etc., and also such activities as the installation of new exhibits, the dispatching of expeditions, and the results of research conducted by the scientific staff. In many cases, the releases were accompanied by photographs. The scope of the Museum's news distribution includes not only the several great metropolitan dailies of Chicago which naturally are a primary objective, but also long lists of small community papers published in various sections of the city, the foreign language papers which reach groups of Chicagoans of various national origins, and the principal papers published in the suburbs of Chicago and in medium-sized cities in Illinois and neighboring states. Those news releases possessing more than local interest in this region were given national, and even international, circulation through the co-operation of such news agencies as the Associated Press, United Press, International News Service, Science Service, Wide-World Photos, and others. Certain of the more important individual newspapers in some of the largest cities of the Atlantic and Pacific coasts, because of the interest they have evinced in the Museum's news, are also carried on the mailing lists, and in some instances, notably the *New York Times*, have given about as much space to the Museum as the local press.

As in the past, editors of newspapers and magazines, whose interest was aroused by general releases, sent their own staff writers and photographers to develop special stories on Museum activities. Likewise, in a number of cases, news from Field Museum excited comment in the editorial columns of leading newspapers. In its publicity efforts, notable co-operation was extended to the Museum

by the *Chicago Daily News*, which showed greater sympathy with and understanding of the aims and mission of the Museum than any other Chicago newspaper. Appreciation is due also to the *Chicago Tribune*, *Chicago Daily Times*, *Chicago Evening American*, and *Chicago Herald-and-Examiner* (the last-named two merged during the year to become the *Chicago Herald-American*), *Chicago Journal of Commerce*, and *Downtown Shopping News*. Among weekly and monthly periodicals showing great interest in the Museum's work were the *Illustrated London News*, *This Week in Chicago*, *National Corporation Reporter*, *Travel*, and others. Of special note was a full-page reproduction in natural colors of the Museum's habitat group of quetzal, the "national bird" of Guatemala, which was published in the *Illustrated London News* issue of March 25, 1939. This, like the *Field Museum News* color plate previously mentioned, was made from a color photograph taken by Mr. Mitchell.

At the request of the General Electric X-ray Corporation, arrangements were made whereby there was lent to that company an Egyptian mummy from the Museum's Department of Anthropology, for use in an exhibit at the New York World's Fair. There the mummy was installed in an exhibit with fluoroscopic apparatus which revealed its interior to the public. This resulted in considerable publicity, in which the representatives of the X-ray corporation, the United Air Lines (by which the mummy was shipped), and the Museum collaborated.

Other forms of publicity which kept the Museum in the public attention included a number of broadcasts on various radio stations and networks; the display of placards advertising Museum exhibits and lectures; and the distribution of many thousands of folders announcing the Sunday afternoon lecture tours presented by Mr. Paul G. Dallwig, the Layman Lecturer, as well as folders giving general information about exhibits, Museum tours, admission, etc. Greatly appreciated is the continued co-operation of the Chicago Rapid Transit Lines, the Chicago Surface Lines, the Chicago, Aurora and Elgin Railroad, the Chicago, North Shore and Milwaukee Railroad, the Chicago and Northwestern Railway, and the Illinois Central System, all of which displayed Museum placards at their stations or in their passenger cars. In addition to these companies, which have placed their advertising media at the Museum's disposal without charge for many years, in 1939 the Chicago Motor Coach Company likewise co-operated by displaying Field Museum cards on its busses. Invitations, accompanied by

folders, were sent to the delegates attending several hundred conventions held in Chicago, and served to bring many of the city's visitors to the Museum. Folders were distributed also through hotels, office buildings, transportation companies, commercial organizations, department stores, libraries, schools, travel bureaus, and other public institutions. Posters advertising the lecture courses were also displayed in some of these establishments.

MEMBERSHIP

It is most encouraging to be able to report an increase in the number of Museum Members for 1939. The total number of memberships recorded as of December 31, 1939, is 4,171. It is gratifying also to report a decrease in the number of Members who found it necessary to resign from membership during 1939. To these former Members an expression of appreciation is due for their past support, and an invitation is extended to them to resume their association with the cultural activities of the institution whenever they may find it possible again to enroll as Members.

An acknowledgment of appreciation and gratitude is made to the many Members who have so loyally continued their support of the institution, and to the many new Members who have become associated with it. Such public-spirited support is an essential aid to the successful continuance of the cultural program of Field Museum.

The following tabulation shows the number of names on the list of each of the membership classifications at the end of 1939:

Benefactors.....	23
Honorary Members.....	12
Patrons.....	25
Corresponding Members.....	7
Contributors.....	121
Corporate Members.....	47
Life Members.....	261
Non-Resident Life Members.....	12
Associate Members.....	2,389
Non-Resident Associate Members.....	8
Sustaining Members.....	7
Annual Members.....	1,259
Total Memberships.....	4,171

The names of all persons listed as Members during 1939 will be found on the pages at the end of this Report.

In the pages which follow are submitted the Museum's financial statements, lists of accessions, *et cetera*.

CLIFFORD C. GREGG, *Director*

COMPARATIVE ATTENDANCE STATISTICS
AND DOOR RECEIPTS

FOR YEARS 1938 AND 1939

	1939	1938
Total attendance	1,410,454	1,391,580
Paid attendance	83,518	91,097
Free admissions on pay days:		
Students	76,651	46,861
School children	92,946	126,554
Teachers	3,084	2,900
Members	1,156	1,255
Admissions on free days:		
Thursdays (52)	212,455	(52) 196,003
Saturdays (52)	379,337	(52) 354,543
Sundays (52)	561,307	(51) 572,367
Highest attendance on any day (June 2)	58,002	(May 20) 47,794
Lowest attendance on any day (January 30)	8	(April 6) 101
Highest paid attendance (September 4)	2,442	(Sept. 5) 3,115
Average daily admissions (363 days)	3,885	(363 days) 3,834
Average paid admissions (207 days)	403	(208 days) 438
Number of guides sold	8,607	7,219
Number of articles checked	22,874	22,604
Number of picture post cards sold	92,325	108,194
Sales of publications, leaflets, handbooks, portfolios, and photographs	\$4,819.18	\$7,601.13

COMPARATIVE FINANCIAL STATEMENTS

FOR YEARS 1938 AND 1939

INCOME		1939	1938
Endowment Funds.....	\$198,455.79		\$191,247.11
Funds held under annuity agree- ments.....	25,728.52		28,878.51
Life Membership Fund.....	10,659.18		11,903.16
Associate Membership Fund...	11,697.08		12,843.41
Chicago Park District.....	86,093.85		117,904.31
Annual and Sustaining Member- ships.....	11,555.00		11,020.00
Admissions.....	20,879.50		22,774.25
Sundry receipts.....	20,012.66		19,757.51
Contributions, general purposes.	298.65		25,961.22
Contributions, special purposes (expended <i>per contra</i>).....	55,399.14		28,172.28
Special funds—part expended this year for purposes designated (included <i>per contra</i>).....	14,457.31		15,276.54
		\$455,236.68	\$485,738.30
EXPENDITURES			
Collections.....	\$ 38,256.62		\$ 9,918.28
Operating expenses capitalized and added to collections...	43,749.41		43,731.66
Expeditions.....	14,549.75		13,159.97
Furniture, fixtures, etc.....	18,247.70		24,923.14
Wages capitalized and added to fixtures.....	8,766.55		6,141.68
Pensions and Group Insurance..	49,281.28		15,361.67
Pensions, past service liability..	220,096.71		
Departmental expenses.....	42,019.41		42,860.28
General operating expenses...	318,676.76		311,591.69
Extraordinary building repairs..	37,311.66		
Annuities on contingent gifts...	29,506.39		30,044.40
Interest on loans.....			1,229.00
Paid on bank loans.....	26,600.00		9,400.00
Reserve for extraordinary building repairs and me- chanical plant depreciation	25,000.00		
		\$872,062.24	\$508,361.77
Deficit..	\$416,825.56		\$ 22,623.47
Contribution by Mr. Marshall Field....	415,138.78		19,530.00
Net Deficit..	\$ 1,686.78		\$ 3,093.47
Notes payable January 1.....	\$ 26,600.00		\$ 36,000.00
Paid on account.....	26,600.00		9,400.00
Balance payable December 31..	\$.....		\$ 26,600.00

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

	1939	1938
Income from Endowment.....	\$18,158.00	\$16,883.42
Operating expenses	16,509.32	15,773.74
December 31.....Balance	\$ 1,648.68	\$ 1,109.68

LIST OF ACCESSIONS

DEPARTMENT OF ANTHROPOLOGY

ANDERSON, MRS. MILDRED, Chicago: 1 jungle belt—Dakar, French West Africa (gift).

ANONYMOUS DONOR, Chengtu, Szechwan, China: 60 ceramic specimens from kiln sites, 2 T'ang dynasty pottery heads—Szechwan, China (gift).

ARMSTRONG, A. LESLIE, Warrington, England: 3 deer antler picks—Grimes Graves, Suffolk, England (gift).

AUGUR, MURRAY B., ESTATE OF, Chicago: 38 Indian specimens from Sioux, Kiowa, Apache, and Navaho of Kansas, Nebraska, Oklahoma, and Arizona (gift).

BENN, MRS. ALONZO NEWTON, Chicago: 1 serape—northern Mexico (gift).

BUFFALO MUSEUM OF SCIENCE, Buffalo, New York: 127 miscellaneous ethnological specimens—New Guinea, Melanesia, and Micronesia (exchange).

BURDICK, MISS NINA, Chicago: 1 basket—Makah Indians, Vancouver Island, British Columbia (gift).

CARPENTER, MRS. GEORGE A., Chicago: 1 pottery jar, Bizen ware, more than 100 years old—Japan (gift).

CARSON, ROBERT S., New York: 13 pottery fragments of typical black and gray ware—site of Ch'eng-tsu-yai excavation, Lung-shan, Shantung, China (gift).

CHAIT, RALPH, New York: 2 bronze halberd butts, with light "water patina," third century B.C. (gift).

COMMONS, GEORGE, Oak Park, Illinois: 1 skeleton from gravel mound—near Algonquin, Illinois (gift).

CORWIN, MRS. CHARLES ABEL, Chicago: 1 Japanese silk wedding robe—Japan (gift).

DART, MISS HELEN M., Chicago: 1 Bundu mask—West Africa (gift).

DONNELLEY, THOMAS E., Chicago: 11 pieces of bronze and 33 of wooden movable type from Korea, thought to date from middle of fifteenth century A.D. (each type represents a Chinese character)—Seoul, Korea (gift).

DONNELLEY, THORNE, Chicago: 3 drums—Negroes, Haiti (gift).

FIELD, DR. HENRY, Chicago: 3 glass and 4 pottery lachrymatories and 3 glass bracelets—Ostia, near Rome, Italy; 2

Parthian stamp seals and 1 Sasanid stamp seal—Balad Sinjar, Iraq; 31 Roman antiquities—Rome and England; 26 Near East ethnological specimens, and 11 prehistoric animal bones—Saccopastore, near Rome, Italy; 3 skulls—Karbala, Iraq (gift).

FIELD MUSEUM OF NATURAL HISTORY:

Collected by Dr. Paul S. Martin (Field Museum Archaeological Expedition to the Southwest): approximately 350 specimens consisting of bone and stone tools, potsherds and whole or mendable pieces of pottery, and skeletal material.

Purchases: 177 flints—England; 41 pieces of black pottery, probably prehistoric—Liang-chu, near Hangchow, Chekiang Province, China; lacquered wooden grille, presumably inside cover of a coffin, about fourth century B.C.; 2 Chinese Shang dynasty bronze weapons—China; 26 casts of human remains from prehistoric sites—England; 1 Chinese bronze tomb fixture—Peiping, China; 25 objects of clothing, school-books, etc., and toys of two Chinese school children—Tung hsien, near Peiping, China; 1 prehistoric jar, 23 pieces of peasant embroidery, 10 shadow-play figures—Szechwan province, China.

FISHER, ANNE, ESTATE OF, Millbrook, Dutchess County, New York: 138 negatives and prints: 38 negatives, 85 prints, and 15 enlarged prints of scenes in Iraq (gift).

GAYTON, LORAN D., Chicago: 2 skulls and 1 femur—Chicago (gift).

HAMBLETON, C. J., Chicago: 1 Tibetan prayer wheel of silver, inlaid with turquoise and coral—Tibet (gift).

HARBAUGH, CHARLES B., JR., Chicago: 1 pair of Sioux sandals—United States; 1 hippopotamus tusk and 1 small knife with wooden handle—Congo region, Africa (gift).

JOSEPH, ARTHUR W., Chicago: 1 Plains Indian cradle hood—Dakota Sioux (gift).

LAMBERT, DR. S. M., Utica, New York: 265 ethnological specimens—New Guinea and Pacific Islands (gift).

LUDLOW, MRS. A. I., ESTATE OF, Cleveland, Ohio: 110 Korean charms, 1

complete key charm, and 1 policeman's club—Seoul, Korea (gift).

MANDEMENT, J., Ussat-les-Bains, Ariège, France: 6 archaeological objects—France (gift).

MARSTON, ALVAN T., London, England: 16 flint implements, and 1 molar tooth of an elephant—Barnfield Pit, Swanscombe, Kent, England (gift).

NESBITT, DR. PAUL H., Beloit, Wisconsin: 27 Mogollon sherds representing various kinds of pottery, 5 pieces of whole pottery, and 2 stone hoes—Reserve, New Mexico (exchange).

PEABODY, MISS S. W., Chicago: 2 silver repoussé bowls, 3 lacquer boxes,

1 specimen of old money—Laos, Siam (gift).

PEI, DR. W. C., Peiping, China: 2 plaster busts of restoration of *Sinanthropus pekinensis* by Lucille Swan, 1 set of colored plaster casts of teeth, and 115 artifacts and casts of implements from Choukoutien—China (gift).

TOWN, WILLIAM J., Detroit, Michigan: 1 skull—near Dearborn, Michigan (gift).

WATKINS, FRANK, Chicago: 1 complete suit of Japanese armor composed of 14 separate parts—Japan (gift).

WILSON, SAMUEL E., Chicago: 4 Chinese bronze mace heads, one with iron handle—China (exchange).

DEPARTMENT OF BOTANY—ACCESSIONS

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pennsylvania: 445 specimens of United States plants, 10 specimens of diatoms (exchange).

ACKLEY, DR. ALMA B., Detroit, Michigan: 1 algal specimen (gift).

AELLEN, DR. PAUL, Basel, Switzerland: 36 specimens of European plants (exchange).

AGRICULTURAL AND MECHANICAL COLLEGE, Monticello, Arkansas: 628 plant specimens (gift); 142 plant specimens (exchange).

AGUILAR G., JOSÉ IGNACIO, Guatemala City, Guatemala: 767 specimens of Guatemalan plants (gift).

ANDERSON, DR. EDGAR, St. Louis, Missouri: 1 plant specimen (gift).

APOLINAR-MARÍA, REV. BROTHER, Bogotá, Colombia: 204 specimens of Colombian plants (gift).

ARNOLD ARBORETUM, Jamaica Plain, Massachusetts: 1,446 specimens of Chinese plants (exchange).

ARTAMONOFF, MRS. GEORGE, Chicago: 150 specimens of Mexican and Central American plants (gift).

BADER, MISS JOAN, Toms River, New Jersey: 2 algal specimens (gift).

BARKLEY, DR. FRED A., Missoula, Montana: 4 specimens of algae (gift).

BARROS, DR. MANUEL, Buenos Aires, Argentina: 59 specimens of plants from Argentina (exchange).

BAUER, BILL, Webster Groves, Missouri: 465 specimens of Missouri plants (gift).

BAUSOR, DR. S. C., Bethlehem, Pennsylvania: 6 specimens of algae (gift).

BENKE, HERMANN C., Chicago: 269 specimens of United States plants (gift).

BOLD, DR. HAROLD C., Nashville, Tennessee: 257 specimens of algae (gift).

BOTANIC GARDENS, Melbourne, Australia: 50 specimens of Australian plants (exchange).

BOTANICAL MUSEUM, HARVARD UNIVERSITY, Cambridge, Massachusetts: 161 specimens of Philippine plants (gift).

BOWDEN, WRAY M., Boyce, Virginia: 2 plant specimens (gift).

BRACELIN, MRS. H. P., Berkeley, California: 91 plant specimens (gift).

BROWN, MISS MARJORIE, Bennington, Vermont: 135 specimens of Panama plants (gift).

BUTLER, MRS. GEORGE A., ESTATE OF, Chicago: 256 cryptogamic specimens (gift).

CALDERON, DR. SALVADOR, San Salvador, El Salvador: 1 plant specimen (gift).

CALIFORNIA ACADEMY OF SCIENCES, San Francisco, California: 188 specimens of California plants (exchange).

CARLE, ERWIN W., Pomona, California: 17 wood specimens (exchange).

CARNEGIE INSTITUTION OF WASHINGTON, Desert Laboratory, Tucson, Arizona: 64 specimens of plants from Lower California (exchange).

CARNEGIE INSTITUTION OF WASHINGTON, Division of Plant Biology, Stanford University, California: 5 photographic prints (exchange).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 430 specimens of Pennsylvania plants (exchange).

CATHOLIC UNIVERSITY OF AMERICA, Washington, D.C.: 330 specimens of American plants (exchange).

CENTRO NACIONAL DE AGRICULTURA, San Pedro Montes de Oca, Costa Rica: 130 specimens of Costa Rican plants (gift).

CLARKSON, MRS. RALPH, Chicago: 1 plant specimen (gift).

CLEMENS, MRS. MARY S., Lao, Morobe, New Guinea: 14 specimens of New Guinea plants (gift).

CLOKEY, IRA W., South Pasadena, California: 15 plant specimens (gift).

CONSERVATOIRE ET JARDIN BOTANIKES, Geneva, Switzerland: 2,700 specimens of plants from tropical America (exchange).

CORNELL UNIVERSITY, Department of Botany, Ithaca, New York: 129 plant specimens (exchange).

CORRELL, DONOVAN S., Cambridge, Massachusetts: 76 specimens of United States plants (gift).

CROASDALE, DR. HANNAH C., Hanover, New Hampshire: 1 algal specimen (gift).

CUTLER, HUGH C., St. Louis, Missouri: 19 plant specimens (gift).

DAILY, WILLIAM A., Indianapolis, Indiana: 138 specimens of algae (gift).

DAMANN, K., Evanston, Illinois: 5 specimens of algae (gift).

DANIEL, REV. BROTHER H., Medellín, Colombia: 80 specimens of Colombian plants (gift).

DASTON, JOSEPH S., Chicago: 3 plant specimens (gift).

DEAM, CHARLES C., Bluffton, Indiana: 6 plant specimens (gift).

DEPARTMENT OF AGRICULTURE, Central Experimental Farm, Ottawa, Canada: 244 specimens of Canadian plants (exchange).

DIRECCION GENERAL DE TIERRAS DEL MINISTERIO DE AGRICULTURA, Herbario Forestal de la Sección Técnica de Bosques, Buenos Aires, Argentina: 1 plant specimen (gift).

DIRECCION TÉCNICA, Ministerio de Agricultura y Cría, Caracas, Venezuela:

973 specimens of Venezuelan plants (gift).

DRURY, NEWTON B., Berkeley, California: 3 photographic prints (gift).

DURHAM, OREN C., Chicago: 1 plant specimen (gift).

DYER, R. A., Pretoria, South Africa: 1 specimen of palm fruits (gift).

ELIAS, REV. BROTHER, Caracas, Venezuela: 53 specimens of Venezuelan plants (gift).

ELLIS, MISS CHARLOTTE C., Mancos, Colorado: 109 specimens of Colorado plants (gift).

EVANS, DR. HERBERT M., Berkeley, California: 1,650 plant specimens (gift).

FAIRCHILD, DR. DAVID, Coconut Grove, Florida: 2 plant specimens (gift).

FIELD, DR. HENRY, Chicago: 2 specimens of vegetable extracts, 42 specimens of algae (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Donald Richards and Dr. Francis Drouet: 205 specimens of algae.

Collected by John R. Millar: 20 specimens of Colorado plants; (Sewell L. Avery Expedition to Nova Scotia, 1938): 87 specimens of algae.

Collected by Karl P. Schmidt (Magellanic Expedition of Field Museum): 82 specimens of Peruvian plants.

Collected by Paul C. Standley (Sewell L. Avery Expedition of Field Museum, 1938-39): approximately 30,000 specimens of Guatemalan plants.

Collected by Paul C. Standley and Dr. Julian A. Steyermark: 25 specimens of Indiana and Michigan plants.

Collected by Dr. Julian A. Steyermark: 5,107 specimens of Missouri plants.

Collected by G. T. Velasquez, Donald Richards, and Dr. Francis Drouet: 45 specimens of algae.

Collected by Leon L. Walters (Field Museum Florida Expedition, 1939): 6 specimens of marine algae.

Collected by Llewelyn Williams: 1,730 specimens of Venezuela plants, 242 wood specimens, 7 economic specimens.

Made by J. Francis Macbride: 4,021 photographic negatives of type specimens of plants.

Transferred from the Division of Photography: 2,474 photographic prints.

Purchases: 2,179 cryptogamic specimens; 163 plant specimens—British Guiana; 945 plant specimens—Costa Rica; 309 plant specimens—Ecuador; 517 plant specimens—Mexico; 136 plant specimens—Panama; 388 plant specimens—Peru; 337 plant specimens—South America.

FISHER, GEORGE L., Houston, Texas: 165 plant specimens (gift).

FLORISTS' PUBLISHING COMPANY, Chicago: 3 plant specimens (gift).

FOSBERG, DR. F. RAYMOND, Philadelphia, Pennsylvania: 45 specimens of Hawaiian plants, 5 algal specimens (gift); 575 specimens of mosses and algae (exchange).

FRANZEN, A. J., Chicago: 7 plant specimens (gift).

GAGNEPAIN, DR. FRANÇOIS, Paris, France: 1 plant specimen (gift).

GARFIELD PARK CONSERVATORY, Chicago: 87 specimens of cultivated plants (gift).

GARRETT, PROFESSOR ARTHUR O., Salt Lake City, Utah: 140 specimens of Utah plants (gift).

GENTRY, HOWARD SCOTT, Tucson, Arizona: 21 plant specimens (gift).

GIFFORD, JOHN C., Miami, Florida: 1 plant specimen (gift).

GILES, GEORGE H., Wilsonville, Nebraska: 1 algal specimen (gift); 35 specimens of algae (exchange).

GRAY HERBARIUM, Cambridge, Massachusetts: 100 plant specimens (exchange).

GRONEMANN, CARL F., Elgin, Illinois: 1 specimen of fungus (gift).

GUARRERA, S. A., Buenos Aires, Argentina: 11 specimens of algae (gift).

HALE, MISS EDNA KATE, Hot Springs, Arkansas: 33 specimens of Arkansas plants (gift).

HARRISON, PROFESSOR B. F., Provo, Utah: 16 plant specimens (gift).

HATCH, PROFESSOR WINSLOW R., Hanover, New Hampshire: 135 specimens of Costa Rican plants (gift).

HEATH, CHARLES A., Chicago: 5 economic specimens (gift).

HERMANN, DR. F. J., Washington, D.C.: 98 specimens of plants from eastern United States (exchange).

HERRERA, DR. A. L., Mexico City, Mexico: 1 plant specimen (gift).

HEWETSON, WILLIAM T., Freeport, Illinois: 1 plant specimen (gift).

HINCKLEY, L. C., Austin, Texas: 27 plant specimens (gift).

HOOGSTRAAL, HARRY, Chicago: 658 specimens of Mexican plants (gift).

ILLINOIS STATE MUSEUM, Springfield, Illinois: 350 specimens of Illinois plants (gift).

INMAN, DR. ONDESS L., Yellow Springs, Ohio: 10 specimens of algae (gift).

INSTITUTO MIGUEL LILLO, Tucumán, Argentina: 4 plant specimens (gift).

INTERNATIONAL HARVESTER COMPANY, Chicago: 1 plant specimen (gift).

JARDIM BOTANICO, Rio de Janeiro, Brazil: 26 specimens of Brazilian plants (gift).

JARDIM BOTANICO DE BELO HORIZONTE, Minas Geraes, Brazil: 1,772 specimens of Brazilian plants (gift).

JENNINGS, JOHN W., Eureka Springs, Arkansas: 1 plant specimen (gift).

JOHNSON, S. C., AND SON, INC., Racine, Wisconsin: 2 specimens of vegetable waxes (gift).

JOHNSTON, DR. JOHN R., Chimaltenango, Guatemala: 80 specimens of Guatemalan plants (gift).

JOLIET PARK CONSERVATORY, Joliet, Illinois: 11 specimens of cultivated plants (gift).

KANSAS STATE COLLEGE OF AGRICULTURE, Manhattan, Kansas: 22 plant specimens (gift).

KENOYER, PROFESSOR LESLIE A., Kalamazoo, Michigan: 620 specimens of Mexican plants (gift).

KNOBLOCH, IRVING W., San Juanito, Chihuahua, Mexico: 54 specimens of Mexican plants (gift).

KRUKOFF, BORIS A., New York: 36 plant specimens (gift).

LEAL, PROFESSOR ADRIÁN RUIZ, Mendoza, Argentina: 3 plant specimens (gift).

LEES, ARTHUR S., Oak Lawn, Illinois: 1 plant specimen (gift).

LESUEUR, HARDE, Austin, Texas: 600 specimens of Mexican plants (gift).

LEWIS, MRS. B. B., Guatemala City, Guatemala: 19 plant specimens (gift).

LOS ANGELES MUSEUM OF HISTORY, SCIENCE AND ART, Department of Botany, Los Angeles, California: 333 specimens of plants from California and Mexico (exchange).

MCCART, WILLIAM L., Denton, Texas: 104 specimens of Texas plants (gift).

MCINTEER, DR. B. B., Lexington, Kentucky: 11 specimens of algae (gift).

MARSHALL COLLEGE, Department of Botany, Huntington, West Virginia: 100 specimens of West Virginia plants (exchange).

MARTÍNEZ, PROFESSOR MAXIMINO, Mexico City, Mexico: 5 plant specimens (gift).

MEYER, PROFESSOR TEODORO, Fontana, Chaco, Argentina: 14 plant specimens (exchange).

MILLE, REV. LUIS, Manabí, Ecuador: 4 plant specimens (gift).

MILLS, MISS NELLIE, East Chicago, Illinois: 1 plant specimen (gift).

MISSOURI BOTANICAL GARDEN, St. Louis, Missouri: 643 specimens of Panama plants (exchange).

MONTANA STATE UNIVERSITY, Department of Botany, Missoula, Montana: 38 plant specimens (gift); 100 plant specimens (exchange).

MONTEIRO DA COSTA, R. C., Pará, Brazil: 1 wood specimen, 12 economic specimens (gift).

MOORE, GEORGE, Lebanon, Missouri: 68 specimens of Missouri plants (gift).

MUSEO ARGENTINO DE CIENCIAS NATURALES, Buenos Aires, Argentina: 162 specimens of South American plants (exchange).

MUSEO DE HISTORIA NATURAL, Montevideo, Uruguay: 301 specimens of Uruguayan plants (exchange).

MUSEO DEL INSTITUTO DE LA SALLE, Bogotá, Colombia: 131 specimens of Colombian plants (gift).

MUSEO NACIONAL, San José, Costa Rica: 192 specimens of Costa Rican plants (gift).

MUSEUM NATIONAL D'HISTOIRE NATURELLE (Phanérogamie), Paris, France: 7,032 plant specimens, 5 photographic prints, 10 economic specimens (exchange).

NATURHISTORISKA RIKSMUSEET, Stockholm, Sweden: 279 specimens of plants from Europe and South America, 202 specimens of algae (exchange).

NEW YORK BOTANICAL GARDEN, New York: 1,157 specimens of South American plants, 72 specimens of algae, 22 photographic prints (exchange).

NEW YORK STATE MUSEUM, Albany, New York: 2 plant specimens (gift).

PACHECO, H. MARIANO, Guatemala City, Guatemala: 2 plant specimens, 1 economic specimen (gift).

PALMER, C. MERVIN, Indianapolis, Indiana: 7 specimens of algae (gift).

PATRICK, MISS RUTH, Philadelphia, Pennsylvania: 13 specimens of algae (gift).

PEARSALL, GORDON, River Forest, Illinois: 1,102 specimens of United States plants, 172 cryptogamic specimens (gift).

PÉREZ CABRERA, DR. RICARDO, San José, Costa Rica: 1 publication (exchange).

PETERSEN, L. LIND, Escuintla, Guatemala: 1 mahogany board (gift).

PETERSEN, OSCAR, St. Louis, Missouri: 5 plant specimens (gift).

PONCE, PROFESSOR JOSÉ M., Mexico City, Mexico: 15 plant specimens (gift).

PRESCOTT, DR. G. W., Albion, Michigan: 31 specimens of algae (gift).

REKO, DR. BLAS P., Tacubaya, Mexico: 1 plant specimen (gift).

RICHARDS, DONALD, Chicago: 61 cryptogamic specimens (gift).

ROSENGURTT, PROFESSOR BERNARDO, Montevideo, Uruguay: 20 plant specimens (gift).

ROYAL BOTANIC GARDENS, Kew, Surrey, England: 66 plant specimens from Peru and Mexico (exchange).

RUNYON, ROBERT, Brownsville, Texas: 25 plant specimens (exchange).

RUTLEDGE, MISS ALMA, Baltimore, Maryland: 54 specimens of algae (exchange).

SANDEMAN, CHRISTOPHER, London, England: 2 plant specimens (gift).

SANDS, MRS. H. B., Chicago: 1 plant specimen (gift).

SAVAGE, JOSEPH, Antioch, Illinois: 1 plant specimen (gift).

SCHESTEL, WILLIAM J., Syracuse, New York: 1 plant specimen (gift).

SCHMIDT, KARL P., Homewood, Illinois: 1 plant specimen (gift).

SCHNEIDER, RICHARD A., Kankakee, Illinois: 191 specimens of Mexican plants (gift).

SCOTT, MILTON, Miami, Florida: 86 wood specimens (exchange).

- SELLA, EMIL, Chicago: 2 specimens of algae (gift).
- SERVICO DE BOTANICA E AGRO-NOMIA, São Paulo, Brazil: 43 specimens of Brazilian plants (gift).
- SHERFF, DR. EARL E., Chicago: 535 plant specimens, 128 photographic negatives, 48 photographic prints (gift).
- SMITH, F. W., Guasave, Sinaloa, Mexico: 1 plant specimen (gift).
- SMITH, DR. F. W. OWEN, Guatálón, Guatemala: 1 plant specimen (gift).
- SMITH, PRESTON, Oberlin, Ohio: 52 specimens of algae (gift).
- SOUKUP, PROFESSOR J., Puno, Peru: 229 specimens of Peruvian plants (gift).
- STANDLEY, PAUL C., Chicago: 2 plant specimens (gift).
- STANTON, E. J., AND SON, INC., Los Angeles, California: 1 board of mahogany (gift).
- STEIN, CHARLES, Chicago: 1 plant specimen (gift).
- STEYERMARK, MRS. CORA SHOOP, Chicago: 146 cryptogamic specimens (gift).
- STEYERMARK, DR. JULIAN A., Chicago: 2 plant specimens, 3 cryptogamic specimens (gift).
- STIFFLER, MRS. CLOYD B., Chicago: 14 cryptogamic specimens (gift).
- STONE, MISS JESSIE L., Chicago: 1 plant specimen (gift).
- STRICKLAND, J. C., Charlottesville, Virginia: 184 specimens of algae (exchange).
- TANDY, GEOFFREY, London, England: algal specimen (gift).
- TAYLOR, DR. WILLIAM R., Ann Arbor, Michigan: 14 specimens of algae (gift).
- THOMPSON, H. D., Spokane, Washington: 1 plant specimen (gift).
- TIFFANY, DR. LEWIS H., Evanston, Illinois: 6 specimens of algae (gift).
- TOUGALOO COLLEGE, Department of Botany, Tougaloo, Mississippi: 3 plant specimens (gift).
- TRESSLER, DR. WILLIS L., Buffalo, New York: 4 specimens of algae (gift).
- UNITED STATES DEPARTMENT OF AGRICULTURE, Bureau of Plant Industry, Washington, D.C.: 18 plant specimens (gift); 5 plant specimens (exchange).
- UNITED STATES DEPARTMENT OF AGRICULTURE, Food and Drug Adminis-
- tration, Washington, D.C.: 2 plant specimens (gift).
- UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 446 plant specimens, 739 typed descriptions of new species of plants (exchange).
- UNIVERSIDAD DE CONCEPCION, Herbarium, Concepción, Chile: 25 specimens of Chilean plants (exchange).
- UNIVERSITY OF CALIFORNIA, Department of Botany, Berkeley, California: 130 specimens of California plants (exchange).
- UNIVERSITY OF CHICAGO, Department of Botany, Chicago: 2,145 plant specimens, 73 wood specimens (gift).
- UNIVERSITY OF ILLINOIS, Department of Botany, Urbana, Illinois: 1 plant specimen (gift).
- UNIVERSITY OF MICHIGAN, University Herbarium, Ann Arbor, Michigan: 765 plant specimens, 129 specimens of algae (exchange).
- UNIVERSITY OF THE PHILIPPINES, Department of Botany, Manila, Philippine Islands: 128 specimens of algae (exchange).
- UNIVERSITY OF TEXAS, Department of Botany, Austin, Texas: 49 specimens of Texas plants (gift).
- UNIVERSITY OF VIRGINIA, Department of Botany, Charlottesville, Virginia: 17 specimens of algae (gift); 288 specimens of algae (exchange).
- UNIVERSITY OF WISCONSIN, Department of Botany, Madison, Wisconsin: 54 specimens of Wisconsin plants (exchange).
- VARGAS G., DR. CÉSAR, Cuzco, Peru: 95 specimens of Peruvian plants (gift).
- VELASQUEZ, G. T., Ann Arbor, Michigan: 45 specimens of algae (gift).
- VORIS, DR. RALPH, Springfield, Missouri: 13 specimens of Missouri plants, 1 wood specimen (gift).
- VOTH, DR. PAUL D., Chicago: 7 specimens of algae (gift).
- WEED, ALFRED C., Chicago: 8 specimens of Florida plants, 6 cryptogamic specimens (gift).
- WELCH, DR. WINONA H., Greencastle, Indiana: 46 specimens of bryophytes (exchange).
- WHEELER, GEORGE C., Grand Forks, North Dakota: 1 algal specimen (gift).
- WHEELER, LOUIS C., Columbia, Missouri: 4 plant specimens (gift).

WILSON, PROFESSOR CARL L., Hanover, New Hampshire: 255 specimens of Guatemalan plants (gift).

WITTE MEMORIAL MUSEUM, San Antonio, Texas: 75 plant specimens (gift).

WOLF, REV. BROTHER WOLFGANG, St. Bernard, Alabama: 4 plant specimens (gift).

WOLLE, PHILIP W., Princess Anne, Maryland: 5 specimens of algae (gift).

WOODS, LOREN P., Chicago: 11 plant specimens (gift).

WORTHINGTON, DR. H. C., Oak Forest, Illinois: 1 plant specimen (gift).

WRIGHT, DR. STILLMAN, Logan, Utah: 13 specimens of algae (gift).

YALE UNIVERSITY, School of Forestry, New Haven, Connecticut: 16 specimens of plants from British Honduras (gift).

YUNCKER, PROFESSOR TRUMAN G., Greencastle, Indiana: 2 plant specimens (gift).

ZETEK, JAMES, Balboa, Canal Zone: 35 specimens of Panama plants (gift).

ZIESENHENNE, RUDOLF C., Santa Barbara, California: 2 plant specimens (gift).

DEPARTMENT OF GEOLOGY—ACCESSIONS

ACKERMAN, CHARLES N., Antioch, Illinois: vertebra and bones of fore and hind legs and feet of *Cerralces*—Grass Lake, Illinois (gift).

ADAMS, R. J., Chicago: 4 specimens of chalk—near Council Groves, Kansas (gift).

AMERICAN MUSEUM OF NATURAL HISTORY, New York: cast of skull and jaw of *Aleurodon* (exchange).

ARTAMONOFF, MR. AND MRS. GEORGE, Chicago: 1 specimen of sand—Cristobal, Canal Zone; 17 specimens of volcanic products—Guatemala and El Salvador (gift).

BACHELOR, CLARENCE, Chicago: 1 fossil coral Charlevoix, Michigan (gift).

BARNES, VIRGIL E., Austin, Texas: 2 tektites—Texas (exchange).

BENKE, HERMANN C., Chicago: 1 quartz crystal Dubuque, Iowa; 3 specimens of dolomite—Ontario, Canada (gift).

BEST, NOLAN R., Chicago: 1 box of thermoluminescent adularia sand—North Carolina; 2 specimens of nepheline—Ontario, Canada (gift).

BLOMSTRAN, W. A., Lyon Mountain, New York: 1 specimen of byssolite—Lyon Mountain, New York (gift).

BUTLER, R. D., Bethlehem, Pennsylvania: 3 mineral specimens—Pennsylvania (gift).

BYRLAND, GEORGE, Marion, Iowa: 1 hollow hematite concretion—Lane County, Iowa (gift).

CARTER, A. D., East Los Angeles, California: 26 mineral specimens—Los Angeles County, California (gift).

CHANGNON, HARRY, Chicago: 10 invertebrate fossils—various localities (gift).

COLVIN, MRS. JOHN, Chicago: 1 specimen of jasper and hematite, 8 glacial boulders—Wisconsin (gift).

COMPANIA MINERA DE CAILLOMA, Arequipa, Peru: 5 specimens of silver ore—Cailloma Mine, Batras, Arequipa, Peru (gift).

COURTHOPE, T. E., Retsof, New York: 1 specimen of halite—Detroit, Michigan (gift).

DEFORREST, FRANK, Evergreen Park, Illinois: dolphin skull with one jaw—near Fort Myers, Florida (gift).

DEMUTH, GEORGE W., Chicago: 187 mineral specimens, 1 dalmanites specimen—various localities (gift).

ELDRIDGE, DON, Chicago: 5 invertebrate fossils—Wisconsin (gift).

ELSINGA, HENRY, Lead Hill, Arkansas: 5 specimens of rock and ores—Lead Hill, Arkansas (gift).

FIELD, DR. HENRY, Chicago: collection of minerals and fossils—Europe and Asia (gift).

FIELD MUSEUM OF NATURAL HISTORY: Transferred from Department of Anthropology: 1 quartz crystal—locality unknown.

Collected by Henry Herpers: 1 slab of orbicular diorite (?) and 4 invertebrate fossils—Wisconsin.

Collected by Bryant Mather: 22 minerals and rock specimens, 28 invertebrate fossils—various localities.

Collected by Paul O. McGrew (Field Museum Paleontological Expedition to

South Dakota): 13 skulls and 600 bones of Pliocene mammals.

Collected by Bryan Patterson and James H. Quinn (Field Museum Paleontological Expedition to Western Colorado): 128 specimens of fossil vertebrates—Colorado.

Collected by Dr. Fritz Haas (Field Museum Expedition to Florida, 1939): 4 specimens of coquina and shell—Sanibel Island, Florida.

Collected by Leon Walters (Field Museum Expedition to Florida, 1939): 18 invertebrate fossils—Florida.

Purchases: 10 meteorite specimens, 2 individual meteorites, 15 moldavites—various localities; muffler of car struck by Benld meteorite; carapace and plastron of fossil turtle—Arkansas; 1 fossil leaf; 15 negatives and prints of *Phororhacoid* bird bones.

FIELD, STANLEY, Chicago: 5 invertebrate fossils—near Fort Myers, Florida (gift).

FINK, A. F., Chicago: 1 oxyhornblende crystal—locality unknown (exchange).

FRISON, R. E., Tensleep, Wyoming: 8 gastroliths—Big Horn Basin, Wyoming (gift).

GAINES, RICHARD V., Golden, Colorado: 2 chrysoberyl crystals—Golden, Colorado (exchange).

GERINGER BROTHERS, Oak Park, Illinois: 2 specimens of scheelite—Gwynne Mine, California (gift).

GORDON, MISS BERTHA, Porterville, California: 14 mineral specimens, 1 garnet crystal—California; 6 photographs of Death Valley and vicinity (gift).

GRABILL, EDWARD, Chicago: 11 specimens of rocks—Devil's Tower, Wyoming (gift).

GRESKY, BENEDICT, Chicago: 6 specimens of abrasives (gift).

GROESBECK, DR. M. J., Porterville, California: 13 geological specimens—Nevada and Mono Lake, California (gift).

GUERET, EDMOND N., Chicago: 1 specimen of rock—Devil's Tower, Wyoming (gift).

HARRIS, T. F., AND WALTER HOAG, Idda, Arabia: 2 meteorites, 1 silica glass specimen—Wabar, Rub'al Khali, Arabia (gift).

HERPERS, HENRY, Chicago: 1 specimen of cross banding in sandstone—Hoopers Plains, New York (gift).

HOOPER, FRANK C., North Creek, New York: 2 specimens of serendibite—Johnsburg, New York (gift).

HORTON, GRAHAME, Glencullen, Oregon: 1 polished natrolite specimen—Lane County, Oregon (gift).

HOWE, E. G., Puno, Peru: 4 specimens of silver ore—San Antonio de Esquilache Mine, Puno, Peru (gift).

HUBENY, MRS. M. J., Chicago: 1 sardonyx boulder—Oregon (gift).

KNISKERN, MISS KATHERINE S., Johns Hopkins University, Baltimore, Maryland: 4 mineral specimens—New York (gift).

KOELNAU, LUDWIG A., Minneapolis, Minnesota: 1 chatoyant quartz specimen—Cayuna Range, Minnesota (gift).

MARSHALL, BYRON C., Imboden, Arkansas: 5 gypsum crystals—Arkansas (exchange).

MENZEL, WILLIAM, Chicago: 1 specimen of pyrite with chalcopyrite—San Luis Potosi, Mexico (gift).

MERRILL, CHARLES C., Buhl, Idaho: 1 chalcedony geode—Buhl, Idaho (gift).

MUSEUM OF COMPARATIVE ZOOLOGY, Harvard University, Cambridge, Massachusetts: skull of *Buettnarria perfecta*—New Mexico (exchange).

MYNERS, T. F., Mineville, New York: 2 specimens of martite—Mineville, New York (gift).

NEBRASKA STATE TEACHERS' COLLEGE, Chadron, Nebraska: collection of 120 specimens of vertebrate fossils—Marshland, Nebraska (exchange).

NICHOLS, HENRY W., Chicago: 1 fluorescent opal—Virgin Valley, Nevada (gift).

OKLAHOMA GEOLOGICAL SURVEY, Norman, Oklahoma: 1 etched slice of the Soper meteorite—Soper, Oklahoma (exchange).

PREUCIL, FRANK M., Joliet, Illinois: 6 photographs of a meteorite (gift).

RINEHART, WILLIAM G., Batesville, Arkansas: 8 photographs (gift).

SCHNEIDER, A. J. AND RAY, Portland, Oregon: 8 thunder eggs—Jefferson County, Oregon (gift).

SKELLY, JOHN, Milwaukee, Wisconsin: 7 specimens of silver-lead-copper-nickel ore—Sudbury, Ontario (gift).

SMITH, JAY L., Chester, New York: 1 specimen of chiolite—Greenland (exchange).

SNYDER, MISS ANNE H., Kenosha, Wisconsin: 4 invertebrate fossils—Racine, Wisconsin (gift).

STANDARD OIL COMPANY (Indiana), Chicago: 4 specimens of oil products (gift).

STRUCTURAL SLATE COMPANY, Pen Argyl, Pennsylvania: 2 specimens of fabricated slate—Pen Argyl, Pennsylvania (gift).

SULLIVAN, FRED, AND JACK PAIGE, Chicago: 2 specimens of chert—Missouri (gift).

SWETT, D. P., Mina, Nevada: 1 specimen of gold-silver-lead-zinc ore—Mina, Nevada (gift).

TAYLOR, HOWELL, Lebanon, Syria: 5 mineral specimens, 3 invertebrate fossils—Syria (gift).

TREVETT, MISS ANN, Casper, Wyoming: 5 specimens of cordierite—Casper, Wyoming (gift).

VANDERPOOL, MISS ADA, Quincy, Illinois: fragment of mastodon tusk—Michigan (gift).

VINTRUP, R. J., Chicago: 8 mineral specimens—Black Hills, South Dakota (gift).

VON DRASEK, FRANK, Cicero, Illinois: 29 minerals—Hot Springs, Arkansas (gift).

WESTERN SPRINGS PARK BOARD, Western Springs, Illinois: various bones of fossil deer and fossil elephant, and one complete skeleton and parts of skeleton of fossil fish—Western Springs, Illinois (gift).

WILSON, BEN HUB, Joliet, Illinois: 1 specimen of saponite—Barstow, California (gift).

WINTERBOTHAM, JOHN, Chicago: 1 specimen of coral sand, 1 fossil fish, 1 specimen of silicified wood—various localities (gift).

WOLF, GLEN C., Chicago: 110 concretions—Broadview, Montana (gift).

WOODS, LOREN P., Evanston, Illinois: 6 mineral specimens—various localities (gift).

WORTH, F. C., Chicago: 2 mineral specimens—Pennsylvania: 1 specimen of ore—Wisconsin (gift).

ZERK, OSCAR U., Kenosha, Wisconsin: 7 polished slices of agate—various localities (gift); 13 polished slices of agate, 1 specimen of fossil wood, 9 moss agates, 2 rainbow agates—various localities (exchange).

ZODAC, PETER, Peekskill, New York: 1 mineral specimen—Nesquehoning, Pennsylvania (gift).

DEPARTMENT OF ZOOLOGY—ACCESSIONS

ANDERSON, SPENCER, Acapulco, Mexico: 7 insects—Mexico (gift).

ANONYMOUS DONOR: 35,076 birdskins—various localities (gift).

ARTAMONOFF, MRS. GEORGE, Chicago: 1 snake, 11 fishes, 41 insects, 642 other invertebrates—Mexico, Central America and Panama (gift).

BAGOT, FRANK, Miami Beach, Florida: 1 beetle—Florida (gift).

BAKER, PROFESSOR C. L., Memphis, Tennessee: 39 fishes—Reel Foot Lake, Tennessee (gift).

BARBER, CHARLES M., Hot Springs, Arkansas: 1 goat skeleton, 1 mouse, 3 snakes, 3 toads—Arkansas (gift).

BARD, F. N., Highland Park, Illinois: 1 grizzly bear skull—British Columbia (gift).

BARTELL, CARL, Blue Island, Illinois: 1 barn owl—Blue Island, Illinois (gift).

BARTHMAN, HENRY, Useppa Island, Florida: 1 tarpon—Useppa Island, Florida (gift).

BASS BIOLOGICAL LABORATORY, Englewood, Florida: 98 fishes—Englewood, Florida: 2 sharks—Charleston, South Carolina (gift).

BAUER, MISS MARGARET J., Chicago: 1 toad, 1 moth—Chicago (gift).

BAYLIS, JOHN, Chicago: 5 beetles—Cuernavaca, Mexico (gift).

BEECHER, WILLIAM J., Chicago: 16 small mammal skins and skulls—Knox County, Tennessee: 28 small mammal skins and skulls—Fox Lake, Illinois (gift).

BENKE, HERMANN C., Chicago: 33 marine shells—Atlantic coast (gift).

BLACKMORE, MICHAEL, London, England: 6 bats in alcohol—Berkshire, England (gift).

BOEHME, ROBERT E., Chicago: 1 assassin bug—Chicago (gift).

BOMBAY NATURAL HISTORY SOCIETY, Bombay, India: 1 crocodile skull, 2 young crocodiles in alcohol—Sind, India (exchange).

BOULTON, RUDYERD, Chicago: 1 starling—West Nyack, New York; 1 bird—Chicago (gift).

BOWERS, MRS. MABEL, Chicago: 1 red bat—Chicago (gift).

BOYD, JOHN, Southern Pines, North Carolina: 15 butterflies—Suffolk, Virginia (gift).

BRAGG, ARTHUR N., Norman, Oklahoma: 3 tree frogs, 4 toads—Cleveland County, Oklahoma (gift).

BRIDGERS, MISS R. B., Thomasville, Georgia: 1 tarantula with tube web—Thomasville, Georgia (gift).

BRITISH MUSEUM (NATURAL HISTORY), London, England: 123 small mammal skins and skulls—various localities (exchange).

BROOKS, MAJOR ALLAN, Okanagan Landing, British Columbia: 6 birds—Canada and South Seas (exchange).

BROWNE, J. C., Chicago: 3 beetles—Chicago (gift).

BUCK, WARREN, Camden, New Jersey: 7 fishes—Sierra Leone, Africa (gift).

BUCKLEY, DR. L. C., Trang, Siam: 15 bats—Siam (gift).

BULLOCK, DR. DILLMAN S., Angol, Chile: 38 rodent skins and skulls, 8 birds—Chile (exchange); 24 frogs and toads, 30 lizards, 10 snakes—Chile (gift).

BURTON, ROBERT A., Evanston, Illinois: 1 weasel—Chicago; 12 salamanders, 1 frog, 2 toads—Massachusetts and New Jersey; 10 frogs, 2 toads, 3 snakes—Illinois and Indiana (gift).

CAMRAS, SYDNEY, Chicago: 2 birds—Chicago (gift).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 1 salamander—Cabell County, West Virginia (gift).

CASCARD, BEN, Chicago: 5 birds—Gary, Indiana (gift).

CHARLESTON MUSEUM, Charleston, South Carolina: 11 small fishes—South Carolina (gift).

CHAWORTH-MUSTERS, J. L., London, England: 15 bats in alcohol—Somerset, England (gift).

CHICAGO ZOOLOGICAL SOCIETY, Brookfield, Illinois: 32 mammals, 148 birds, 6 snakes, 2 lizards, 1 alligator, 6 ticks—various localities (gift).

CONOVER, BOARDMAN, Chicago: 6 birds—various localities (exchange); 10 birds—various localities (gift).

CORWIN, MRS. CHARLES A., Chicago: 4 paintings of Laysan Island birds (gift).

DAVIS, W. B., College Station, Texas: 1 skunk skin and skull—Texas (exchange).

DEMAREE, DR. DELZIE, Monticello, Arkansas: 3 snakes—Arkansas (gift).

DODGE, H. R., Columbus, Ohio: 1 beetle—Minnesota (gift).

DOWNS, WILLIAM, Denver, Colorado: 4 beetles—Denver, Colorado (gift).

DUBISCH, R., Oswego, Illinois: 1 snake—Oswego, Illinois (gift).

DYBAS, HENRY, Chicago: 1 scorpion, 3 land shells—Columbia (gift).

EFF, DONALD, Sylvania, Ohio: 1 moth—Sylvania, Ohio (gift).

FABRICUS, WALTER, Chicago: 1 snake—Chicago (gift).

FALCK, EUGENE G. J., Chicago: 2 salamanders, 12 toads, 165 frogs, 12 snakes, 3 lizards, 7 turtles, 815 freshwater mollusks, 57 crayfish, 19 insects—Missouri; 13 crayfish, 135 mollusks—Lake County, Illinois (gift).

FIELD, DR. HENRY, Chicago: 4 shells—Philippine Islands; 24 bats in alcohol, 60 fishes, 151 insects and allies, 441 mollusks—Iraq; 86 fishes, 43 crabs, 100 shells, 1 sponge—York Harbor, Maine (gift).

FIELD, DR. HENRY AND JOHN LINDSAY, Chicago: 17 insects—Southborough, England (gift).

FIELD MUSEUM OF NATURAL HISTORY:

Collected by Emmet R. Blake (Sewell Avery Expedition to British Guiana): 20 small mammal skins and skulls, 3 small mammals and 31 bats in alcohol, 498 bird skins, 2 fledglings in alcohol, 111 frogs and toads, 10 snakes, 39 lizards, 752 fishes, 1 bird spider, 1 scorpion—British Guiana.

Collected by Emmet R. Blake: 15 birds—Illinois.

Collected by Dr. Fritz Haas and Leon L. Walters (Field Museum Expedition to Florida): 14 mammal skins and skulls, 2 lizards, 2 snakes, 15 turtles, 1 eel, 6,001 invertebrates.

Collected by Dr. Wilfred H. Osgood, F. W. Gorham, and W. F. Nichols (Field Museum Expedition to New Mexico): 37 insects and allies—New Mexico and Colorado.

Collected by Bryan Patterson and James H. Quinn (Field Museum Paleontological Expedition to Colorado, 1939):

10 mammal skeletons, 28 bird skeletons, 103 lizards, 2 snakes, 241 invertebrates—Colorado and Utah.

Collected by Colin C. Sanborn (Field Museum Expedition to Scotland): 1 bird—Scotland.

Collected by Colin C. Sanborn, Karl P. Schmidt, and John M. Schmidt (Field Museum Magellanic Expedition): 562 mammal skins and skulls, 22 mammal skeletons, 120 bird skins, 1 bird in alcohol, 4 sets of birds' eggs, 221 mollusks, 33 crayfish, 52 isopods—Peru.

Collected by Karl P. Schmidt (Field Museum Expedition to Arkansas): 109 insects and allies—Arkansas.

Collected by Karl P. Schmidt: 45 tiger salamanders—Chicago.

Collected by Paul C. Standley (Sewell Avery Expedition to Guatemala): 2 beetles—Guatemala.

Purchases: 6 forest hogs—Africa; 98 small rodents, 2 bats—Africa; 18 snakes, 12 lizards, 11 turtles—Arkansas; 35 bird skins—Bolivia (Emily Crane Chadbourne Fund); 1 ring-tailed cat—California; 12 small mammal skins and skulls, 10 frogs, 3 snakes—Czechoslovakia; 419 butterflies and moths—Colombia; 85 frogs and toads, 20 lizards, 5 snakes—Ecuador; 1 whale skeleton—Englewood, Florida; 7 small mammal skins and skulls—Korea; 73 bird skins—Panama; 7 mammal skins and 8 skulls, 60 bats in alcohol, 2 bird skins, 1 fish—Mexico; 1 jack rabbit—Montana; 49 bird skins—Peru; 8 snakes—Texas; 170 salamanders, 35 frogs and toads—various localities; 251 hawks and owls, 2 other bird skins—various localities (Leslie Wheeler Fund).

FIELD, WILLIAM D., Lawrence, Kansas: 2 butterflies—Lawrence, Kansas (gift).

FLEMING, ROBERT L., Mussoorie, India: 1 bat skin and skull—Mussoorie, India (gift).

FONTANA, HUMBERT, Chicago: 1 short-eared owl—Bensenville, Illinois (gift).

FRAZEN, ALBERT J., Chicago: 1 juvenile starling—Chicago (gift).

FREELAND, MRS. L., Chicago: 1 spider—Chicago (gift).

FRIESSER, JULIUS, Chicago: 4 mammal skulls—Arizona (gift).

GENERAL BIOLOGICAL SUPPLY HOUSE, Chicago: 2 lizards, 9 snakes—Panama;

1 lot leopard frog eggs; 1 giant earthworm—Peru; 12 freshwater snails—Florida (gift).

GERHARD, WILLIAM J., Chicago: scorpions—Nayarit, Mexico (gift).

GRANT, MAJOR CHAPMAN, San Diego, California: 3 Jamaican geckos—Jamaica (gift).

GRANT, GORDON, Los Angeles, California: 19 salamanders, 1 lizard—Los Angeles, California (gift).

GROESBECK, DR. M. J., Porterville, California: 11 flies, 20 fairy shrimps—Mono Lake, California (gift).

GRONEMANN, CARL F., Elgin, Illinois: 8 freshwater shells—Kane County, Illinois (gift).

GUERET, EDMOND N., Chicago: 4 mammal skeletons—New York (gift).

HAGEY, H. H., Madison, Wisconsin: 1 bird—Madison, Wisconsin (gift).

HANSON, HAROLD C., Chicago: 21 small mammal skins and skulls, 2 bird skins—Decorah, Iowa (gift).

HIGGINS, HAROLD, Price, Utah: 4 geckos—Samoa (gift).

HILL, FREDERICK W., Chicago: 2 hummingbird skins—Costa Rica (gift).

HIRSCHBERG, ERWIN, Chicago: 1 beetle—Fremont, Ohio (gift).

HOBGOOD, DR. W. C., Monticello, Arkansas: 3 salamanders, 1 swamp tree frog—Monticello, Arkansas (gift).

HOOGSTRAAL, HARRY, Chicago: 1 fish—Santa Engracia, Mexico (gift).

HOOGSTRAAL, HARRY AND PHILIP STONE, Champaign, Illinois: 1 albino spermophile skin and skull—Champaign County, Illinois (gift).

HUEY, L. M., San Diego, California: 1 ring-tailed cat—San Diego County, California (gift).

INSTITUTO DE LA SALLE, Bogotá, Colombia: 4 rodents, 8 bats—Colombia (gift).

JURICH, MRS. THERESA, Chicago: 2 rock dove eggs (gift).

KAPPEL, JOHN, Chicago: 1 bat bug—Chicago (gift).

KESSEN, G. J., Sanibel Island, Florida: 2 snakes, 10 shells—Sanibel Island, Florida (gift).

KNAACK, MRS. D., Coronado, California: 1 millipede—Catskill Mountains, New York (gift).

KOEHLER, W. A., Chicago: 1 snake—Chicago (gift).

- KOERSTEIN, THEODORE, Chicago: 1 tiger salamander—Wisconsin (gift).
- KURFESS, JOHN, Hinsdale, Illinois: 1 common shrew—Hinsdale, Illinois; 1 snake—Kelly, Wyoming (gift).
- KURFESS, JOHN, AND ROBERT A. BURTON, Hinsdale and Evanston, Illinois: 5 frogs, 1 toad, 5 lizards, 10 snakes, 5 turtles—Will and Grundy Counties, Illinois (gift).
- LAMBERT, DONALD, Zion City, Illinois: 2 parasites—Zion City, Illinois (gift).
- LARRISSEY, GEORGE A., Chicago: 1 snake—Illinois (gift).
- LAYBOURNE, MISS PHYLLIS, Homewood, Illinois: 2 snakes—Michigan (gift).
- LERNER, MICHAEL, New York: 1 mounted broad-bill swordfish and large photograph of same—Cape Breton, Nova Scotia; 15 kodachrome slides, 1 roll of processed kodachrome film, 22 enlarged photographs, views of Mount Egmont, New Zealand (gift).
- LETL, FRANK H., Homewood, Illinois: 1 bird, 1 toad—Homewood, Illinois; 1 juvenile crow—Matteson, Illinois (gift).
- LEVY, SEYMOUR, Chicago: 1 bird—Blue Island, Illinois (gift).
- LILJEBLAD, EMIL, Chicago: 6 moths—Chicago (gift).
- LINCOLN PARK ZOO, Chicago: 1 adult lioness, 1 giant skink, 4 snakes (gift).
- LINDAU, EDWARD W., Palatine, Illinois: 1 spider with young—Palatine, Illinois (gift).
- LITTLE, JAMES, Naperville, Illinois: 1 salamander, 7 frogs and toads, 8 snakes—Oconto County, Wisconsin (gift).
- LIX, H. W., Hot Springs, Arkansas: 1 snake—Hot Springs, Arkansas (gift).
- LOEWENSTAMM, H., Chicago: 127 land and freshwater shells—Palestine (gift).
- LORIMER, ANDREW, Prestonkirk, East Lothian, Scotland: 1 stoat—Scotland (gift).
- MARIA, BROTHER NICEFORO, Bogotá, Colombia: 24 bat skins with skulls, 22 bird skins—Colombia (gift).
- MASON, MISS N. B., Davenport, Iowa: 1 garter snake—Davenport, Iowa (gift).
- MCELVARE, ROWLAND R., New York: 1 moths, 2 beetles—various localities (gift).
- MEINERTZHAGEN, COLONEL RICHARD, London, England: 4 mammals, northern Afghanistan; 14 bird skins—Africa and Asia (gift).
- MILLAR, JOHN R., Chicago: 1 bird—Chicago; 2 snakes, 2 turtles—Clay County, Indiana (gift).
- MILLE, LUIS, Bahia de Caraquez, Ecuador: 6 sponges and corals—Ecuador (gift).
- MOONEY, E. C., Kingsville, Texas: 2 lizards, 2 snakes—Kingsville, Texas (gift).
- MURPHY, WALTER P., Lake Bluff, Illinois: 1 albino chipmunk—New Haven, Connecticut (gift).
- MUSÉE DE LA PROVINCE, Quebec, Canada: 4 bird skins—Canada (exchange).
- MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Massachusetts: 24 small mammal skins and skulls—Borneo and Siam; 1 rat skin and skull—French Indo-China; 3 mammal skins and skulls—Florida; 21 mammal skins and skulls, 2 mammals in alcohol, 7 bird skins—various localities (exchange).
- NELSON, DR. HAROLD H., Chicago: 63 bats in alcohol—Egypt (gift).
- NILES, RAY, Lake Geneva, Wisconsin: 1 large trout skull—Lake Geneva, Wisconsin (gift).
- OHIO STATE UNIVERSITY, Columbus, Ohio: 101 fishes—Ohio (exchange).
- OSGOOD, DR. WILFRED H., Chicago: 30 mammal skins and skulls, 1 mammal skeleton, 1 bat in alcohol, 2 bird skins—Mississippi and Florida (gift).
- OWENS, DAVID W., Flossmoor, Illinois: 2 salamanders, 2 toads, 7 frogs, 1 snake—Standard City, Illinois (gift).
- PATTERSON, BRYAN, Chicago: 35 mollusks—Illinois and Indiana (gift).
- PATTERSON, MRS. BRYAN, Chicago: 1 hog-nosed snake—Augusta, Illinois (gift).
- PHILBY, H. ST. JOHN, Jidda, Arabia: 3 hedgehogs and 12 bats in alcohol, 6 toads, 36 lizards, 7 snakes—Arabia (gift).
- PLATH, KARL, Chicago: 1 Guiana parrot—British Guiana (gift).
- RASOOL, HABIB, Buxton, British Guiana: 69 bird skins—British Guiana (gift).
- RIBNIKER, MARTIN, Chicago: 12 birds—Illinois (gift).

RINKER, G. C., Hamilton, Kansas: 61 small mammal skins and skulls—Kansas (exchange).

RITTSCHOF, FRED, Urbana, Illinois: 1 lizard—Urbana, Illinois (gift).

ROBERTSON, R. R., Chicago: 1 platypus skin (gift).

RUECKERT, ARTHUR G., Chicago: 1 scarlet king snake—Hardy County, Florida (gift).

SANDERS, MRS. RUTH, Dallas, Texas: 2 butterflies—Mexico (gift).

SANDERSON, CLARK, Chicago: 6 sowbugs—Chicago (gift).

SCHMIDT, JOHN M., Homewood, Illinois: 3 bats in alcohol, 6 scorpions, 7 spiders—Texas and Arkansas; 29 rodent skins and skulls, 3 toads, 13 frogs, 17 lizards, 14 snakes, 2 turtles—South Dakota and Nebraska; 4 garter snakes—Homewood, Illinois; 1 mammal skin and skull, 1 amphibaena—Florida (gift).

SCHMIDT, KARL P., Homewood, Illinois: 19 beetles—Homewood, Illinois (gift).

SCHWAB BROTHERS, Muscatine, Iowa: 7 birds—various localities (gift).

SHEDD AQUARIUM, JOHN G., Chicago: 2 giant salamanders, 1 turtle, 76 fishes—various localities (gift).

SIGISMUND OF PRUSSIA, PRINCESS, Estacion Barranca, Costa Rica: 4 centipedes, 4 insects—Costa Rica (gift).

STACK, PATRICK, York Harbor, Maine: 9 insects—York Harbor, Maine (gift).

STANFORD UNIVERSITY NATURAL HISTORY MUSEUM, Stanford University, California: 2 rodent skins and skulls—Galapagos Islands (exchange).

STEYERMARK, DR. JULIAN A., Chicago: 1 mole, 1 bird, 1 frog, 5 snakes—Missouri (gift).

STROHECKER, DR. H. F., Gambier, Ohio: 12 beetles—various localities (gift).

TAYLOR, DR. EDWARD H., Lawrence, Kansas: 1,563 lizards—Mexico (exchange).

TEXAS CO-OPERATIVE WILD LIFE RESEARCH UNIT, College Station, Texas: 1 salamander, 1 snake, 1 turtle—Texas (exchange).

TOBIASZ, EDWARD C., Chicago: 1 tree frog, 1 millipede, 1 bug—Illinois and Indiana (gift).

TURNER, DR. C. L., Evanston, Illinois: 87 tadpoles—Panama (gift).

UNIVERSITY OF MICHIGAN MUSEUM OF ZOOLOGY, Ann Arbor, Michigan: 4 frogs, 8 lizards—Guatemala and Australia (exchange).

VATTER, ALBERT, Glenview, Illinois: 1 wasp nest—Deerfield, Illinois (gift).

VON DER HEYDT, JAMES A., AND BOB ALLEN, Oak Park, Illinois: 33 frogs and toads—Hayward, Wisconsin (gift).

WALTON, MRS. CLARA, Highland Park, Illinois: 1 bird—Highland Park, Illinois (gift).

WARNER, BRYCE, Chicago: 1 bird—Chicago (gift).

WEED, ALFRED C., Chicago: 1 mouse skin and skeleton, 1 frog, 2 snakes, 2,062 fishes, 18 insects and allies, 215 crustaceans—Englewood, Florida; 1 tick, 1 butterfly—Chicago (gift).

WELD, DR. LEWIS H., East Falls Church, Virginia: 34 insects—Turkey and the United States (gift).

WENZEL, RUPERT L., Chicago: 21 beetles—various localities (gift).

WERLER, JOHN, Seaside, Oregon: 9 garter snakes—Seaside, Oregon (gift).

WHITE, MRS. ROBB, Thomasville, Georgia: 3 salamanders, 11 snakes, 12 insects and allies—Thomasville, Georgia (gift).

WILSON, MRS. GRACE N., Chicago: 1 beetle—Chicago (gift).

WOLCOTT, ALBERT B., Downers Grove, Illinois: 20 insects—Illinois (gift).

WONDER, FRANK C., Chicago: 1 dog fish—Lake County, Illinois (gift).

WOODCOCK, H. E., Chicago: 64 butterflies and moths—various localities (gift).

WOODS, LOREN P., Evanston, Illinois: 2 bats in alcohol, 6 tadpoles, 1 frog, 5 lizards, 4 snakes, 1 turtle, 7,484 fishes, 6 dragonfly nymphs, 12 crayfish—Missouri: 1,001 fishes, 202 lower invertebrates—Union County, South Carolina: 875 fishes—Puget Sound, Washington: 12 small mammals in alcohol, 1 human foetus, 10 embryonic chicks in formalin, 1 snake, 1 snapping turtle, 1 fish, 18 insects, 1,177 lower invertebrates—various localities (gift).

ZBYLSKI, JOSEPH, Chicago: 1 young fox squirrel—Illinois (gift).

RAYMOND FOUNDATION—ACCESSIONS

CHICAGO SLIDE COMPANY: 1 black and white slide of a Huon Gulf coconut shell cup (exchange).

FIELD, DR. HENRY: 5 large colored transparencies: Egypt (gift).

FIELD MUSEUM OF NATURAL HISTORY: From Division of Photography: 1,513 lantern slides.

MILLAR, JOHN R.: 15 colored slides on "Preparation of Exhibits" (gift).

DIVISION OF PHOTOGRAPHY—ACCESSIONS

FIELD MUSEUM OF NATURAL HISTORY:

Made by Division of Photography: 5,915 prints, 1,448 negatives, 1,625 lantern slides, 101 enlargements, 12 large transparencies, 20 transparent labels, and 18 rolls of film developed.

Made by Bryan Patterson: 63 negatives of general views in Colorado.

FISHER, MRS. ANN, ESTATE OF, Millbrook, New York: 38 negatives of racial types and general views in Iraq (gift).

PARKER, R. B., Megiddo, Palestine: 700 portrait negatives of natives of Palestine (gift).

PEARSON, HAROLD E., Chicago: 21 negatives of general views in Colorado (gift).

LIBRARY—ACCESSIONS

List of Donors of Books

INSTITUTIONS

Adult Education Council, Chicago.
Americana Corporation, New York.

Biblioteca Publica, Toluca, Mexico.
British Guiana Museum, Georgetown,
British Guiana.

Carnegie Institution, Washington, D.C.
Chesapeake Biological Laboratory,
Solomon's Island, Maryland.
Chicago Park District, Chicago.
Chicago Recreation Commission,
Chicago.

Chicago Recreation Survey, Chicago.
Ciba Symposia, Summit, New Jersey.
Colorado Museum, Boulder, Colorado.
Columbia Broadcasting System,
Chicago.

Cooper Union for the Advancement of
Science and Art, New York.
Crerar Library, John, Chicago.

Denoyer-Geppert Company, Chicago.
Department of Conservation, Nashville,
Tennessee.

Geffrye Museum, London, England.
General Biological Supply House,
Chicago.

Geographical and Historical Society,
Guatemala City, Guatemala.

Glycerine Producers Association,
Chicago.

Golden Gate International Exposition,
San Francisco, California.

Guatemala Ministry of Foreign Affairs,
Guatemala City, Guatemala.

Hallwylska Museet, Stockholm, Sweden.

Imprimerie Mission Catholique, Bel-
gian Congo, Africa.

Institut Français de l'Afrique Noire,
Dakar, Senegal.

Institute for Research, Chicago.

Instituto Cubano de Estabilizacion del
Café, Habana, Cuba.

Japanese Red Cross Society, Tokyo,
Japan.

Josselyn Botanical Society, Orono,
Maine.

Lakeside Press Galleries, Chicago.

Luton Museum, Luton, England.

Ministerio de Fomento Estacion Ex-
perimental Agrícola, Lima, Peru.

Missouri Resources Museum, Jefferson
City, Missouri.

Missouri Valley Fauna, Lincoln, Ne-
braska.

Musée Ethnographique (Etnografski
Musej), Zagreb, Yugoslavia.

Museum van Natuurlijke Historie, Rot-
terdam, Netherlands.

- National Association of Manufacturers, New York.
 New York Horticultural Society, New York.
 New York World's Fair Portugal World's Fair Committee, New York.
 Page and Company, L. C., Boston, Massachusetts.
 Pan-American Society of Tropical Research, New Orleans, Louisiana.
Parks and Recreation, Rockford, Illinois.
 Quarrie Corporation, Chicago.
 Queen Victoria Museum and Art Gallery, Launceston, Australia.
 Save the Redwoods League, Berkeley, California.
 Service News Recreation, Chicago.
 South Africa—Department of Native Affairs, Pretoria, Union of South Africa.
 Staatliche Museum, Berlin, Germany.
 Stechert and Company, G. E., New York.
 Superintendent of Public Instruction, Springfield, Illinois.
 Swift and Company, Chicago.
 Texas Memorial Museum, Austin, Texas.
 Tokyo Negyo Daigaku (Tokyo Agricultural University), Tokyo, Japan.
 United Brewers Industrial Foundation, New York.
 United States Department of Interior, Bureau of Mines, Washington, D.C.
United States Steel News, Pittsburgh, Pennsylvania.
 West Australian Naturalist's Club, Perth, Australia.
 Westinghouse Electric Manufacturing Company, Pittsburgh, Pennsylvania.
 Works Progress Administration, Federal Projects, Chicago.

INDIVIDUALS

- Abbott, Dr. C. E., Searcy, Arkansas.
 Aldis, Graham, Chicago.
 Backer, C. A., Heemstede, Netherlands.
 Bahr, A. V., Surrey, England.
 Ball, Stanley C., New Haven, Connecticut.
 Bascom, William R., Evanston, Illinois.
 Bassett, Professor Norman C., Madison, Wisconsin.
 Benke, H. C., Chicago.
 Blair, W. Frank, Ann Arbor, Michigan.
 Bordas, Alejandro F., Buenos Aires, Argentina.
 Bourret, René, Hanoi, Tonkin.
 Brady, Professor Thomas A., Columbia, Missouri.
 Brammanis, I., Riga, Latvia.
 Brooks, Maurice G., Morgantown, West Virginia.
 Bucher, Walter H., Cincinnati, Ohio.
 Cabot, Thomas D., Boston, Massachusetts.
 Caso, Dr. Alfonso, Mexico City, Mexico.
 Clay, William M., Louisville, Kentucky.
 Coleman, Edith.
 Cooley, R. A., Hamilton, Ontario, Canada.
 Cornell, Miss Margaret M., Chicago.
 Dallwig, Paul G., Chicago.
 Davis, D. Dwight, Chicago.
 Devincenzi, Garibaldi J., Montevideo, Uruguay.
 Dieseldorff, Erwin P., Guatemala City, Guatemala.
 Emberger, Louis, Montpellier, France.
 Emerson, Dr. Alfred E., Chicago.
 Ennis, Miss Margaret, Chicago.
 Fairchild, Dr. Herman L., Rochester, New York.
 Field, Dr. Henry, Chicago.
 Field, Stanley, Lake Forest, Illinois.
 Fort Hunter Museum, Harrisburg, Pennsylvania.
 Fosberg, F. R., Philadelphia, Pennsylvania.
 Garkowski, Mathias, Chicago.
 Gaskin, L. J. P., London, England.
 Gerhard, Peter, Winnetka, Illinois.
 Gerhard, W. J., Chicago.
 Gregg, Clifford C., Flossmoor, Illinois.
 Haas, Dr. Fritz, Chicago.

- Hack, John T., Cambridge, Massachusetts.
- Hambly, Dr. Wilfrid D., Chicago.
- Hermanson, Miss Helen, Chicago.
- Herrera, Dr. Fortunato L., Lima, Peru.
- Hicks, Lawrence E., Columbus, Ohio.
- Hungerford, Dr. H. B., Lawrence, Kansas.
- Ikéuchi, Professor H., Tokyo, Japan.
- Isely, P. B., Waxahachie, Texas.
- Johnson, E. R. Fenimore, Camden, New York.
- Kelso, L., Washington, D.C.
- Keyes, Charles R., Mount Vernon, Iowa.
- Krogman, Wilton M., Cleveland, Ohio.
- Lagercrantz, S., Stockholm, Sweden.
- Leason, P. A., Victoria, Australia.
- Leussler, R. A., Omaha, Nebraska.
- Lewis, Dr. Albert B., Chicago.
- Lion, Mme. L., Paris, France.
- Loo, C. T., New York.
- Lundell, C. L., Ann Arbor, Michigan.
- Macbride, J. Francis, Chicago.
- McConnell, Burt M., New York.
- McMahon, William E., Fort Worth, Texas.
- Martin, Dr. Paul S., Chicago.
- Mather, Bryant, Chicago.
- May, Louis Philippe, Paris, France.
- Moldenke, Harold N., New York.
- Morley, Dr. Sylvanus G., Washington, D.C.
- Moyer, John W., Chicago.
- Murray-Aaron, Dr. Eugene, Chicago.
- Nichols, Henry W., Chicago.
- Olalla, A. M., São Paulo, Brazil.
- Omer-Cooper, Joseph, Grahamstown, Cape Colony, South Africa.
- Osgood, Dr. Wilfred H., Chicago.
- Overbeck, H.
- Parsons, C., Chicago.
- Pérez Cabrera, Dr. Ricardo, San José, Costa Rica.
- Phelps, William H.
- Porsild, A. N., Ottawa, Canada.
- Poulter, Thomas C., Chicago.
- Rehder, Alfred, Jamaica Plains, Massachusetts.
- Riggs, Elmer S., Chicago.
- Royo, Dr. Fernando, Santa Clara, Cuba.
- Ruiz Leal, A., Mendoza, Argentina.
- Ryan, Sister Mary Hilaire, River Forest, Illinois.
- Sanborn, Colin Campbell, Chicago.
- Sanderson, Milton W., Fayetteville, Arkansas.
- Sarkar, Dr. Benoy Kumar, Calcutta, India.
- Schmidt, Karl P., Chicago.
- Schoute, Professor J. C., Groningen, Netherlands.
- Serrano, Professor Antonio, Paraná, Argentina.
- Sherff, Dr. E. E., Chicago.
- Shimer, Dr. Hervey W., Cambridge, Massachusetts.
- Slater, J. R., Tacoma, Washington.
- Smith, Harold Vincent, New York.
- Smith, Hobart M., Pittsburgh, Pennsylvania.
- Smith, Lyman Bradford, Cambridge, Massachusetts.
- Spinden, Dr. Herbert J., New York.
- Standley, Paul C., Chicago.
- Stearn, William Thomas, London, England.
- Stillwell, Jerry E., Dallas, Texas.
- Stirton, R. A., Berkeley, California.
- Stromer, Dr. Ernst.
- Teilhard de Chardin, P., Nanking, China.
- Teixeira de Fonseca, Enrico, Rio de Janeiro, Brazil.
- Thomson, Stewart C., Chicago.
- Uthmöller, Wolfgang, Munich, Germany.
- Vail, R. W. G., Worcester, Massachusetts.
- Vaillant, George C., New York.
- Van Epps, Percy M., Amsterdam, New York.
- Vanderpool, Ada, Quincy, Illinois.
- Varga, H. E., Cleveland, Ohio.
- Vargas, Luis, Mexico City, Mexico.
- Vestal, Paul A., Cambridge, Massachusetts.
- Vetlesen, Mrs. Georg, New York.

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Walker, Dr. James W., Chicago.

Wallace, George J., Boston, Massachusetts.

Wenzel, Rupert L., Chicago.

Whitsett, R. B., Jr., Logansport, Indiana.

Wilbur, C. Martin, Chicago.

Wilbur, H. A., New York.

Williams, Llewellyn, Chicago.

Wolcott, A. B., Chicago.

Wolffhügel, Dr. Kurt, Department
Puerto, Chile.

Wrigley, J. Brent, Tulsa, Oklahoma.

Wyatt, K., Chicago.

Young, C. C., Nanking, China.

Zingg, Robert Mowry, Denver, Colorado.

ARTICLES OF INCORPORATION

STATE OF ILLINOIS

DEPARTMENT OF STATE

WILLIAM H. HINRICHSSEN, *Secretary of State*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A.D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSSEN,
Secretary of State.

[SEAL]

TO HON. WILLIAM H. HINRICHSSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to-wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archaeology, Science and History.

3. The management of the aforesaid museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Edward E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch, James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed)

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McCurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaat, George Schneider, Henry H. Getty, William R. Harper, Franklin H. Head, E. G. Keith, J. Irving Pearce, Azel F. Hatch, Henry Wade Rogers,

Thomas B. Bryan, L. Z. Leiter, A. C. Bartlett, A. A. Sprague, A. C. McClurg, James W. Scott, Geo. F. Russell, John R. Walsh, Chas. Fitzsimmons, John A. Roche, E. B. McGagg, Owen F. Aldis, Ferdinand W. Peck, James H. Dole, Joseph Stockton, Edward B. Butler, John McConnell, R. A. Waller, H. C. Chatfield-Taylor, A. Crawford, Wm. Seely Smith, P. S. Peterson, John C. Black, Jno. J. Mitchell, C. F. Gunther, George R. Davis, Stephen A. Forbes, Robert W. Patterson, Jr., M. C. Bullock, Edwin Walker, George M. Pullman, William E. Curtis, James W. Ellsworth, William E. Hale, Wm. T. Baker, Martin A. Ryerson, Huntington W. Jackson, N. B. Ream, Norman Williams, Melville E. Stone, Bryan Lathrop, Elphalest W. Blatchford, Philip D. Armour.

STATE OF ILLINOIS

ss.

COOK COUNTY

I, G. R. MITCHELL, a NOTARY PUBLIC in and for said County, do hereby certify that the foregoing petitioners personally appeared before me and acknowledged severally that they signed the foregoing petition as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this 14th day of September, 1893.

G. R. MITCHELL,

[SEAL]

NOTARY PUBLIC, COOK COUNTY, ILL.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 25th day of June, 1894, the name of the COLUMBIAN MUSEUM was changed to FIELD COLUMBIAN MUSEUM. A certificate to this effect was filed June 26, 1894, in the office of the Secretary of State for Illinois.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 8th day of November, 1905, the name of the FIELD COLUMBIAN MUSEUM was changed to FIELD MUSEUM OF NATURAL HISTORY. A certificate to this effect was filed November 10, 1905, in the office of the Secretary of State for Illinois.

CHANGE IN ARTICLE 3

Pursuant to a resolution passed at a meeting of the corporate members held the 14th day of May, 1920, the management of FIELD MUSEUM OF NATURAL HISTORY shall be invested in a Board of TWENTY-ONE (21) TRUSTEES, who shall be elected in such manner and for such time and term of office as may be provided for by the By-Laws. A certificate to this effect was filed May 21, 1920, in the office of the Secretary of State for Illinois.

AMENDED BY-LAWS

DECEMBER, 1939

ARTICLE I

MEMBERS

SECTION 1. Members shall be of twelve classes, Corporate Members, Honorary Members, Patrons, Corresponding Members, Benefactors, Contributors, Life Members, Non-Resident Life Members, Associate Members, Non-Resident Associate Members, Sustaining Members, and Annual Members.

SECTION 2. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such person named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of Twenty Dollars (\$20.00) or more. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SECTION 3. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

SECTION 4. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SECTION 5. Any person contributing or devising the sum of One Hundred Thousand Dollars (\$100,000.00) in cash, or securities, or property to the funds of the Museum, may be elected a Benefactor of the Museum.

SECTION 6. Corresponding Members shall be chosen by the Board from among scientists or patrons of science residing in foreign countries, who render important service to the Museum. They shall be elected by the Board of Trustees at any of its meetings. They shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 7. Any person contributing to the Museum One Thousand Dollars (\$1,000.00) or more in cash, securities, or material, may be elected a Contributor of the Museum. Contributors shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 8. Any person paying into the treasury the sum of Five Hundred Dollars (\$500.00), at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of One Hundred Dollars (\$100.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Life Member. Non-Resident Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees.

SECTION 9. Any person paying into the treasury of the Museum the sum of One Hundred Dollars (\$100.00), at any one time, shall, upon the vote of the Board, become an Associate Member. Associate Members shall be exempt from all dues, and shall be entitled to tickets admitting Member and members of family, including non-resident home guests; all publications of the Museum issued during the period of their membership, if so desired; reserved seats for all lectures and enter-

tainments under the auspices of the Museum, provided reservation is requested in advance, and admission of holder of membership and accompanying party to all special exhibits and Museum functions day or evening. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of Fifty Dollars \$50.00 at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Associate Member. Non-Resident Associate Members shall be exempt from all dues and shall enjoy all the privileges and courtesies of the Museum that are accorded to Associate Members.

SECTION 10. Sustaining Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Twenty-five Dollars \$25.00, payable within thirty days after notice of election and within thirty days after each recurring annual date. This Sustaining Membership entitles the member to free admission for the Member and family to the Museum on any day, the Annual Report and such other Museum documents or publications issued during the period of their membership as may be requested in writing. When a Sustaining Member has paid the annual fee of \$25.00 for six years, such Member shall be entitled to become an Associate Member.

SECTION 11. Annual Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Ten Dollars (\$10.00), payable within thirty days after each recurring annual date. An Annual Membership shall entitle the Member to a card of admission for the Member and family during all hours when the Museum is open to the public, and free admission for the Member and family to all Museum lectures or entertainments. This membership will also entitle the holder to the courtesies of the membership privileges of every Museum of note in the United States and Canada, as well as the existing system of co-operative interchange of membership tickets and be maintained, including tickets for any lectures given under the auspices of any of the Museums during a visit to the cities in which the co-operative museums are located.

SECTION 12. All membership fees, excepting Sustaining and Annual, shall hereafter be applied to a permanent Membership Endowment Fund, the interest only of which shall be applied for the use of the Museum as the Board of Trustees may order.

ARTICLE II

BOARD OF TRUSTEES

SECTION 1. The Board of Trustees shall consist of twenty-one members. The respective members of the Board now in office, and those who shall hereafter be elected, shall hold office during life. Vacancies occurring in the Board shall be filled at a regular meeting of the Board, upon the nomination of the Executive Committee made at a preceding regular meeting of the Board, by a majority vote of the members of the Board present.

SECTION 2. Regular meetings of the Board shall be held on the third Monday of the month. Special meetings may be called at any time by the President and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum, except for the election of officers or the adoption of the Annual Budget, when seven Trustees shall be required, but meetings may be adjourned by any less number from day to day, or to a day fixed, previous to the next regular meeting.

SECTION 3. Reasonable written notice, designating the time and place of holding meetings, shall be given by the Secretary.

ARTICLE III

HONORARY TRUSTEES

SECTION 1. As a mark of respect, and in appreciation of services performed for the Institution, any Trustee who by reason of inability, on account of change of residence, or for other cause or from indisposition to serve longer in such capacity shall resign, his place upon the Board, may be elected, by a majority of those present at any regular meeting of the Board, an Honorary Trustee for life. Such Honorary Trustee will receive notice of all meetings of the Board of Trustees,

whether regular or special, and will be expected to be present at all such meetings and participate in the deliberations thereof, but an Honorary Trustee shall not have the right to vote.

ARTICLE IV

OFFICERS

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Third Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, the Second Vice-President, and the Third Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the third Monday of January of each year, and shall be called the Annual Meeting.

SECTION 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SECTION 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

ARTICLE V

THE TREASURER

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation except as hereinafter provided. He shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

SECTION 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely: the President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum.

SECTION 3. The Treasurer shall give bond in such amount, and with such sureties as shall be approved by the Board of Trustees.

SECTION 4. The Harris Trust & Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of Field Museum" fund. The bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

ARTICLE VI

THE DIRECTOR

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the Institution, subject to the authority of the Board of Trustees and its Committees. The Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SECTION 2. There shall be four scientific Departments of the Museum—Anthropology, Botany, Geology, and Zoology; each under the charge of a Chief

Curator, subject to the authority of the Director. The Chief Curators shall be appointed by the Board upon the recommendation of the Director, and shall serve during the pleasure of the Board. Subordinate staff officers in the scientific Departments shall be appointed and removed by the Director upon the recommendation of the Chief Curators of the respective Departments. The Director shall have authority to employ and remove all other employees of the Museum.

SECTION 3. The Director shall make report to the Board at each regular meeting, recounting the operations of the Museum for the previous month. At the Annual Meeting, the Director shall make an Annual Report, reviewing the work for the previous year, which Annual Report shall be published in pamphlet form for the information of the Trustees and Members, and for free distribution in such number as the Board may direct.

ARTICLE VII

THE AUDITOR

SECTION 1. The Board shall appoint an Auditor, who shall hold his office during the pleasure of the Board. He shall keep proper books of account, setting forth the financial condition and transactions of the Corporation, and of the Museum, and report thereon at each regular meeting, and at such other times as may be required by the Board. He shall certify to the correctness of all bills rendered for the expenditure of the money of the Corporation.

ARTICLE VIII

COMMITTEES

SECTION 1. There shall be five Committees, as follows: Finance, Building, Auditing, Pension, and Executive.

SECTION 2. The Finance Committee shall consist of six members, the Auditing and Pension Committees shall each consist of three members, and the Building Committee shall consist of five members. All members of these four Committees shall be elected by ballot by the Board at the Annual Meeting, and shall hold office for one year, and until their successors are elected and qualified. In electing the members of these Committees, the Board shall designate the Chairman and Vice-Chairman by the order in which the members are named in the respective Committee; the first member named shall be Chairman, the second named the Vice-Chairman, and the third named, Second Vice-Chairman, succession to the Chairmanship being in this order in the event of the absence or disability of the Chairman.

SECTION 3. The Executive Committee shall consist of the President of the Board, the Chairman of the Finance Committee, the Chairman of the Building Committee, the Chairman of the Auditing Committee, the Chairman of the Pension Committee, and three other members of the Board to be elected by ballot at the Annual Meeting.

SECTION 4. Four members shall constitute a quorum of the Executive Committee, and in all standing Committees two members shall constitute a quorum. In the event that, owing to the absence or inability of members, a quorum of the regularly elected members cannot be present at any meeting of any Committee, then the Chairman thereof, or his successor, as herein provided, may summon any members of the Board of Trustees to act in place of the absentee.

SECTION 5. The Finance Committee shall have supervision of investing the endowment and other permanent funds of the Corporation, and the care of such real estate as may become its property. It shall have authority to invest, sell, and reinvest funds, subject to the approval of the Board.

SECTION 6. The Building Committee shall have supervision of the construction, reconstruction, and extension of any and all buildings used for Museum purposes.

SECTION 7. The Executive Committee shall be called together from time to time as the Chairman may consider necessary, or as he may be requested to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of

each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the expenditures stated are authorized.

SECTION 8. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SECTION 9. The Pension Committee shall determine by such means and processes as shall be established by the Board of Trustees to whom and in what amount the Pension Fund shall be distributed. These determinations or findings shall be subject to the approval of the Board of Trustees.

SECTION 10. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SECTION 11. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

ARTICLE IX

NOMINATING COMMITTEE

SECTION 1. At the November meeting of the Board each year, a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Auditing Committee, and the Pension Committee, and for three members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

ARTICLE X

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution and the workings, researches, installations, expenditures, field work, laboratories, library, publications, lecture courses, and all scientific and maintenance activities.

SECTION 2. These By-Laws may be amended at any regular meeting of the Board of Trustees by a two-thirds vote of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.

BEQUESTS

Bequests to Field Museum of Natural History may be made in securities, money, books or collections. They may, if desired, take the form of a memorial to a person or cause, to be named by the giver. For those desirous of making bequests to the Museum, the following form is suggested:

FORM OF BEQUEST

I do hereby give and bequeath to Field Museum of Natural History of the City of Chicago, State of Illinois, _____

Contributions made within the taxable year to Field Museum of Natural History to an amount not in excess of 15 per cent of the taxpayer's net income are allowable as deductions in computing net income for federal income tax purposes.

Endowments may be made to the Museum with the provision that an annuity be paid to the patron during his or her lifetime. These annuities are guaranteed against fluctuation in amount and may reduce federal income taxes.

FOUNDER

Marshall Field*

BENEFACTORS

Those who have contributed \$100,000 or more to the Museum

Ayer, Edward E.*	Harris, Albert W.	Raymond, James Nelson*
Buckingham, Miss	Harris, Norman W.*	Ryerson, Martin A.*
Kate S.*	Higinbotham, Harlow N.*	Ryerson, Mrs.
		Martin A.*
Crane, Cornelius	Kelley, William V.*	
Crane, R. T., Jr.*		Simpson, James*
Field, Joseph N.*	Pullman, George M.*	Smith, Mrs. Frances
Field, Marshall		Gaylord*
Field, Stanley	Rawson, Frederick H.*	Smith, George T.*
Graham, Ernest R.*	Raymond, Mrs. Anna	Sturges, Mrs. Mary D.*
	Louise	Suarez, Mrs. Diego

* DECEASED

HONORARY MEMBERS

Those who have rendered eminent service to Science

Cutting, C. Suydam	Ludwig, H. R. H. Gustaf	Roosevelt, Theodore
	Adolf, Crown Prince of	
Field, Marshall	Sweden	Sargent, Homer E.
Field, Stanley		Sprague, Albert A.
	McCormick, Stanley	Suarez, Mrs. Diego
Harris, Albert W.	Roosevelt, Kermit	Vernay, Arthur S.

DECEASED, 1939

Crane, Charles R.	Simpson, James
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PATRONS

Those who have rendered eminent service to the Museum

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 Culbertson, Dr. Carey
 Cummings, Mrs. D.
 Mark
 Cummings, Mrs.
 Frances S.
 Cunes, John F.
 Cunningham, John T.
 Currant, Harry R.
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 Guthrie, Jr.
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 Curtis, Miss Frances H.
 Cusack, Harold
 Cushman, A. W.
 Cushman, Barney
 Cutler, Henry E.
 Dahlberg, Bror G.
 Daily, Richard
 Daley, Harry C.
 Dalmar, Mrs. Hugo
 Dalmar, Hugo, Jr.
 Dammann, J. F.
 Danforth, Dr. William C.
 Dangel, W. H.
 Dantzig, Leonard P.
 Darlington, Joseph F.
 Darrow, Paul E.
 Dashiell, C. R.
 Daughaday, C. Colton
 Davey, Mrs. Bruce C.
 David, Dr. Vernon C.
 Davidson, Dr.
 Alexander L.
 Davidson, David W.
 Davidson, Miss Mary E.
 Davies, Marshall
 Davis, Arthur
 Davis, Brode B.
 Davis, C. S.
 Davis, Dr. Carl B.
 Davis, Frank S.
 Davis, Fred M.
 Davis, James
 Davis, Dr. Loyal
 Davis, Dr. Nathan
 S., III
 Davis, Ralph
 Dawes, E. L.
 DeAcres, Clyde H.
 Deahl, Uriah S.
 Deane, Mrs. Ruthven
 Decker, Charles O.
 DeCosta, Lewis M.
 DeDardel, Carl O.
 Dee, Thomas J.
 Deery, Thomas A., Jr.
 Degen, David
 DeGolyer, Robert S.
 DeKoven, Mrs. John
 DeLee, Dr. Joseph B.
 DeLemon, H. R.
 Demaree, H. S.
 Deming, Everett G.
 Dempster, Mrs.
 Charles W.
 Deneen, Mrs. Charles S.
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 Porter
 Denkwalter, W. E.

- Denman, Mrs. Burt J.
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 Dennis, Charles H.
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 DeVries, Peter
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 Dick, Elmer J.
 Dick, Mrs. Homer T.
 Dickey, Roy
 Dickinson, F. R.
 Dickinson, Robert B.
 Dickinson, Mrs.
 Thompson
 Diehl, Harry L.
 Diestel, Mrs. Herman
 Dikeman, Aaron Butler
 Dimick, Miss Elizabeth
 Dixon, Alan C.
 Dixon, William Warren
 Doctor, Isidor
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 Doering, Mrs.
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 Doering, Otto C.
 Doerr, William P., Sr.
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 Dole, Arthur
 Dolese, Mrs. John
 Donker, Mrs. William
 Donlon, Mrs. Stephen E.
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 Donnelley, Mrs. H. P.
 Donnelley, Miss Naomi
 Donnelly, Frank
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 Drake, Lyman M.
 Drummond, James J.
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 Dudley, Laurence H.
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 Dulany, George W., Jr.
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 Duner, Dr. Clarence S.
 Duner, Joseph A.
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 Dunham, Miss Lucy
 Belle
 Dunham, Robert J.
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 Dunn, Samuel O.
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- Easterberg, C. J.
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- Ebeling, Frederic O.
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 Eckhart, Percy B.
 Eckstein, Mrs. Louis
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 Eddy, Thomas H.
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 Edwards, Kenneth P.
 Egan, William B.
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 Ehrman, Edwin H.
 Eichengreen, Edmund K.
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 Eisendrath, Miss Elsa B.
 Eisendrath, Robert M.
 Eisendrath, William B.
 Eisenschiml, Mrs. Otto
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 Eisenstein, Sol
 Eitel, Max
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 Elich, Robert William
 Ellbogen, Albert L.
 Ellbogen, Miss Celia
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 Ellis, Howard
 Elting, Howard
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 Ericsson, Dewey A.
 Ericsson, Henry
 Ericsson, Walter H.
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 Evans, David J.
 Evans, Eliot H.
 Evans, Evan A.
 Ewell, C. D.
 Ewen, William R. T.
- Fabian, Francis G.
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 Groot, Lawrence A.
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 Hamill, Robert W.
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 Hann, J. Roberts
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 Hardie, George F.
 Hardin, John H.
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 Hardinge, Franklin
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 Harris, Hayden B.
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- Havens, Samuel M.
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 Haynie, Miss Rachel W.
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 Hayslett, Arthur J.
 Hazlett, Dr. William H.
 Healy, Vincent Jerrems
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 Heaton, Herman C.
 Heck, John
 Hedberg, Henry E.
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 Heineman, Oscar
 Heinzelman, Karl
 Heinzen, Mrs. Carl
 Hejna, Joseph F.
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 Helfrich, J. Howard
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 Heller, John A.
 Heller, Mrs. Walter E.
 Hellman, George A.
 Hellyer, Walter
 Hemple, Miss Anne C.
 Henderson, Thomas B. G.
 Henkel, Frederick W.
 Henley, Dr. Eugene H.
 Hennings, Mrs. Abraham J.
 Henry, Huntington B.
 Henry, Otto
 Henschel, Edmund C.
 Henshaw, Mrs. Raymond S.
 Herrick, Charles E.
 Herrick, Miss Louise
 Herrick, Walter D.
 Herron, James C.
 Herron, Mrs. Ollie L.
 Hershey, J. Clarence
 Hertz, Mrs. Fred
 Hertzberg, Lawrence
 Herwig, George
 Herwig, William D., Jr.
 Heun, Arthur
 Heverly, Earl L.
 Hibbard, Mrs. Angus S.
 Hibbard, Mrs. W. G.
 Hicks, E. L., Jr.
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 Higinbotham, Harlow D.
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 Hildebrand, Eugene, Jr.
 Hildebrand, Grant M.
- Hill, Mrs. E. M.
 Hill, Mrs. Russell D.
 Hill, William E.
 Hille, Dr. Hermann
 Hillebrecht, Herbert E.
 Hillis, Dr. David S.
 Hills, Edward R.
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 Hind, Mrs. John Dwight
 Hinkle, Ross O.
 Hinman, Mrs. Estelle S.
 Hinrichs, Henry, Jr.
 Hinsberg, Stanley K.
 Hirsch, Jacob H.
 Histed, J. Roland
 Hixon, Mrs. Frank P.
 Hodgkinson, Mrs. W. R.
 Hoffmann, Miss Caroline Dickinson
 Hoffmann, Edward
 Hempstead
 Hogan, Robert E.
 Hohman, Dr. E. H.
 Hoier, William V.
 Holden, Edward A.
 Holland, Dr. William E.
 Holliday, W. J.
 Hollingsworth, R. G.
 Hollis, Henry L.
 Hollister, Francis H.
 Holmes, George J.
 Holmes, Miss Harriet F.
 Holmes, Mrs. Maud G.
 Holmes, William
 Holmes, William N.
 Holt, Miss Ellen
 Homan, Miss Blossom L.
 Honsik, Mrs. James M.
 Hoover, F. E.
 Hoover, Mrs. Frank K.
 Hoover, Mrs. Fred W.
 Hoover, H. Earl
 Hoover, Ray P.
 Hope, Alfred S.
 Hopkins, Farley
 Hopkins, Mrs. James M.
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 Horcher, William W.
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 Horner, Mrs. Maurice L., Jr.
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 Horst, Curt A.
 Horton, George T.
 Horton, Hiram T.
 Horton, Horace B.
 Hosbein, Louis H.
 Hosmer, Philip B.
 Hottinger, Adolph
 Howard, Willis G.

- Howe, Charles Arthur
 Howe, Clinton W.
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 Howe, Warren D.
 Howe, William G.
 Howell, Albert S.
 Howell, William
 Howes, Mrs. Frank W.
 Howse, Richard
 Hoyne, Thomas Temple
 Hoyt, Mrs. Phelps B.
 Hubbard, George W.
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 Hudson, Mrs. H. Newton
 Hudson, Walter L.
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 Huff, Thomas D.
 Huffy, Mrs. F. P.
 Huggins, Dr. Ben H.
 Hughes, George A.
 Hughes, John E.
 Hughes, John W.
 Hulbert, Mrs. Milan H.
 Hume, John T.
 Humphrey, H. K.
 Huncke, Herbert S.
 Huncke, Oswald W.
 Hunter, Samuel M.
 Hurley, Edward N., Jr.
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 Huszagh, R. LeRoy
 Huszagh, Ralph D.
 Hutchinson, Foye P.
 Hutchinson, Samuel S.
 Hyatt, R. C.
 Ickes, Raymond
 Idelman, Bernard
 Ig, Robert A.
 Inlander, Samuel
 Irwin, Dr. Ernest E.
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 Isaham, Henry P.
 Ives, Clifford F.
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 Jackson, Arthur L.
 Jackson, Miss Laura E.
 Jacob, Miss Emily C.
 Jacobs, Hyman A.
 Jacobs, Julius
 Jacobs, Louis G.
 Jacobs, Walter H.
 Jacobs, Whipple
 Jacobson, Raphael
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 Jameson, Clarence W.
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 Jarchow, Charles C.
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 Jenkins, David F. D.
 Jenkins, Mrs. John E.
 Jenkinson, Mrs. Arthur Gilbert
 Jenks, William Shippen
 Jennings, Ode D.
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 Jerger, Wilbur Joseph
 Jetzinger, David
 Jirka, Dr. Frank J.
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 John, Dr. Findley D.
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 Johnson, Arthur L.
 Johnson, H. C.
 Johnson, Mrs. Harley Alden
 Johnson, Isaac Horton
 Johnson, Joseph M.
 Johnson, Nela E.
 Johnson, Mrs. O. W.
 Johnson, Olaf B.
 Johnson, Philip C.
 Johnston, Arthur C.
 Johnston, Edward R.
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 Johnston, Mrs. M. L.
 Johnstone, George A.
 Johnstone, Dr. Mary M. S.
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 Jones, G. Herbert
 Jones, James B.
 Jones, Dr. Margaret M.
 Jones, Melvin
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 Joseph, Louis L.
 Joy, Gay A.
 Joyce, Joseph
 Judson, Clay
 Juergens, H. Paul
 Julien, Victor R.
 Junkunc, Stephen
 Kaecher, A. W.
 Kahn, Gus
 Kahn, J. Kosner
 Kahn, Louis
 Kahn, James R.
 Kane, Jerome M.
 Kanter, Jerome J.
 Kaplan, Nathan D.
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 Karpen, Michael
 Kaspar, Otto
 Katz, Mrs. Sidney L.
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 Kavanagh, Maurice F.
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 Kempner, Stan
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 Keogh, Gordon E.
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 Kraft, James L.
 Kraft, Norman
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 Loeb, Jacob M.
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 Loewenstein, Sidney
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 Mann, John P.
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 Gordelia Ann
 Marner, Maurice S.
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 McWilliams, H.
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 Marsh, Mrs. Marshall S.
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 Martin, George F.
 Martin, Samuel H.
 Master, W. B.
 Martin, Walter
 Marx, Frederick Z.
 Marshall, Frank W.
 Matzka, Leo A.
 Mason, Miss Kate G.
 Mason, W. and J.
 Massie, B. A.
 Massena, Tony
 Massey, Peter J.
 Masterson, Peter
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 Matson, J. Edward
 Matten, Mrs. John
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 Mayer, Oscar F.
 Mayer, Oscar G.
 Mayer, Theodore S.
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 McCord, Downer
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 McCormick, Mrs.
 Chasmon
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 Elizabeth
 McCright, Louis Ralph
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 McDougal, Mrs. Robert
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 McMillan, W. B.
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 Schmitz, Dr. Henry
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 Schulze, Mrs. Mathilde
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 Schwarz, Herbert E.
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 Seipp, Clarence T.
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 Seipp, William C.
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 Seng, V. J.
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 Sharpe, N. M.
 Shaw, Alfred P.
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 Shaw, Theodore A.
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 C., Sr.
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 Silberman, Charles
 Silberman, David B.
 Silberman, Hubert S.
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 Smith, Franklin P.
 Smith, Harold Byron
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 Dunlap
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 Snow, Fred A.
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 Sonnenschein, Hugo
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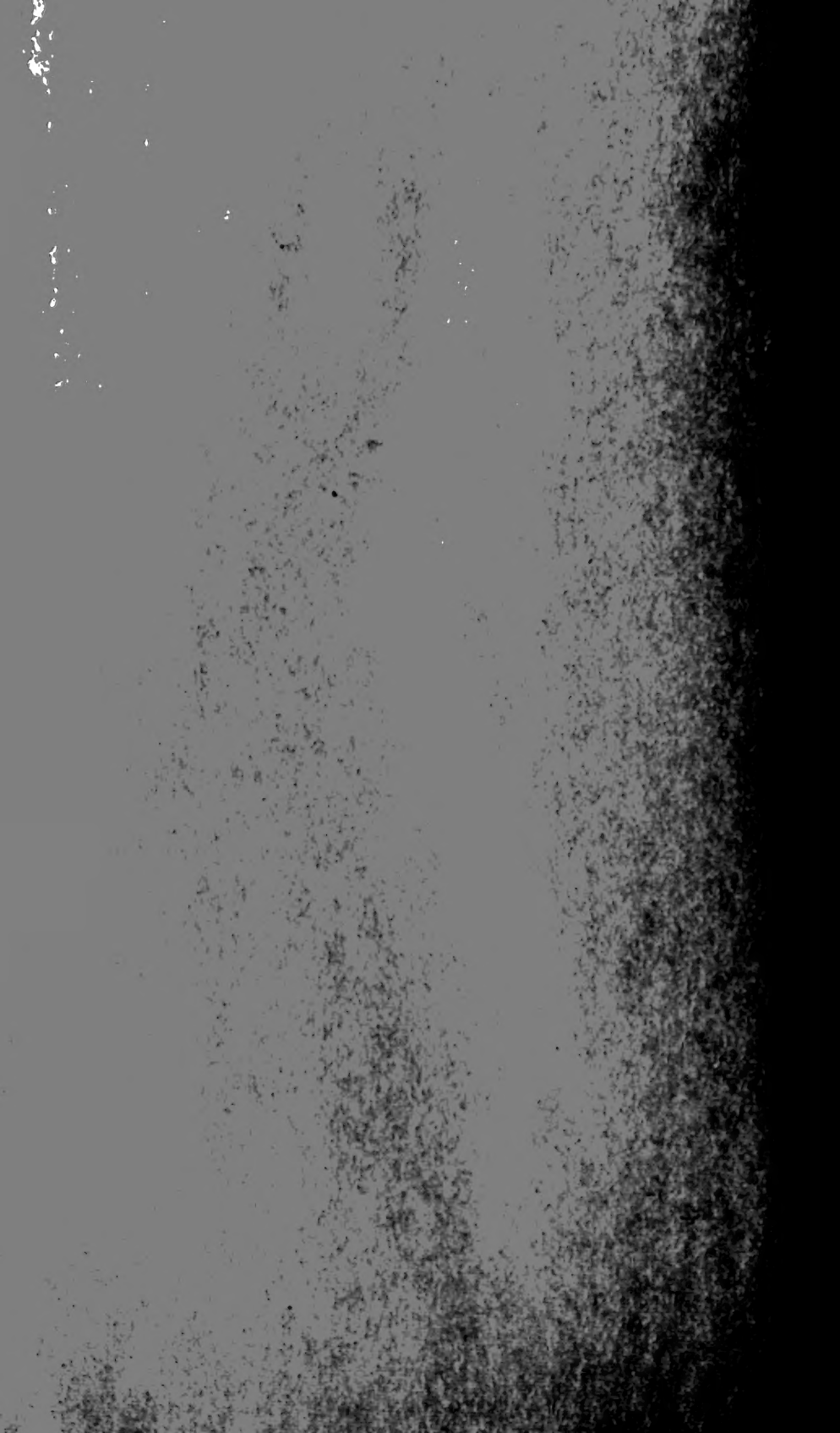
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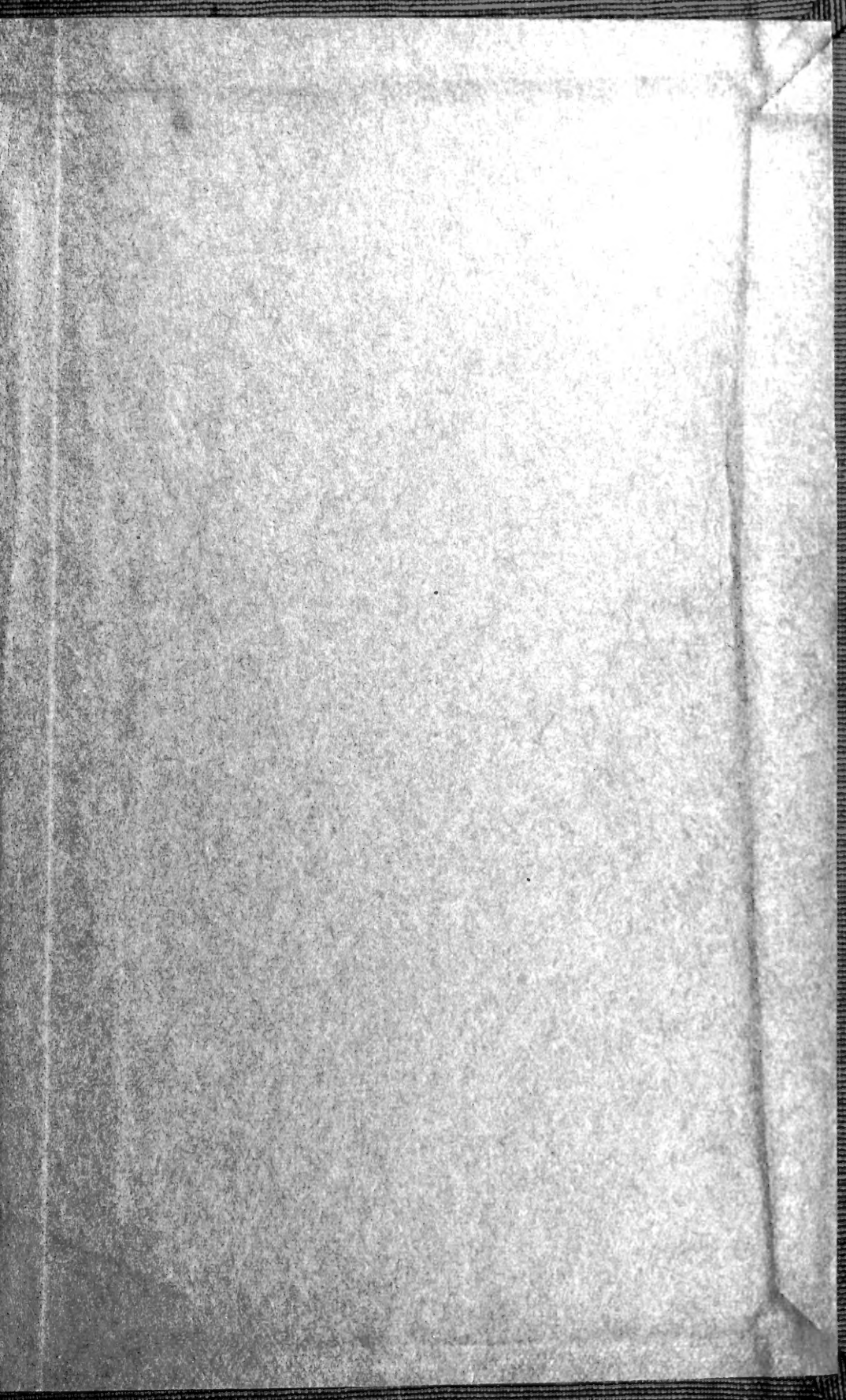
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